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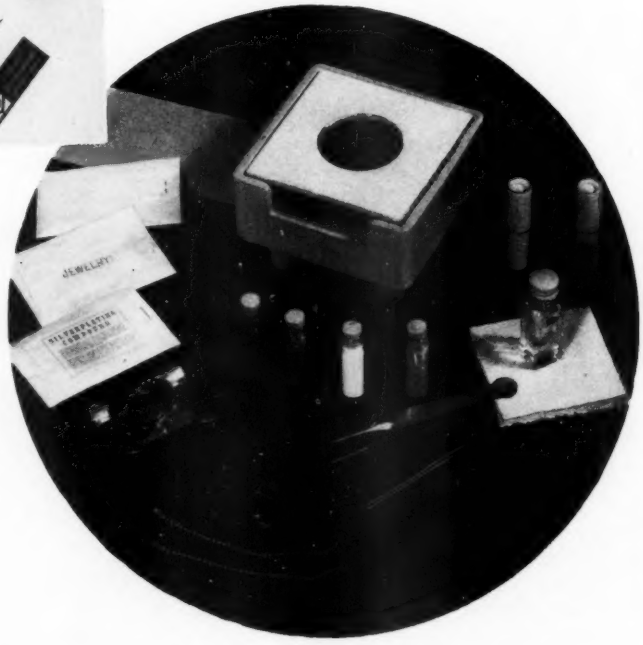

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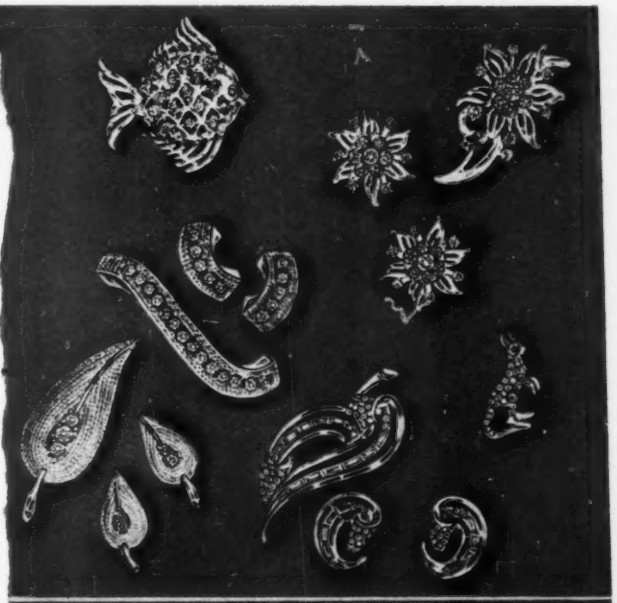

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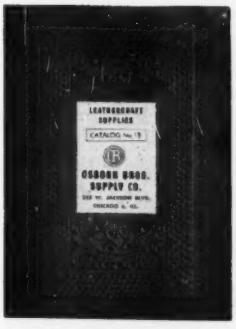

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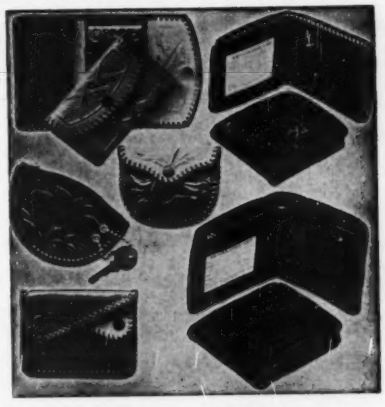

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APPLICATIONS OF THE MACQUARRIE TEST FOR MECHANICAL ABILITY*

F. A. HELLEBRANDT, M.D.
SARA JANE HOUTZ, M.S., R.P.T.

INTRODUCTION

In the fall of 1954 a special course was developed at the University of Illinois to expedite the introduction of occupational therapy students to the principles and practices of modern physical medicine and rehabilitation. Particular stress was placed on tests and measurements in keeping with current trends toward better and more quantitative assessment of the benefits purported to be attained through utilization of physical forms of treatment.

The MacQuarrie Test for Mechanical Ability[1] was selected to illustrate the usefulness of simple standardized paper and pencil aptitude tests which require little or no equipment and are quick and easy to administer. It is composed of seven subtests (tracing, tapping, dotting, copying, location, blocks, and pursuit) which, in the aggregate, provide objective measurement of the aptitudes which underlie successful performance in a wide variety of jobs of a mechanical nature. The test as a whole has a high reliability coefficient.[2] This means that the general level of performance at any given state of training is reasonably repeatable. The test measures eye-hand coordination, hand dexterity, and spacial visualization. Its original edition was used to rate the mechanical aptitude of more than 5,000,000 persons. That available currently contains a table of percentile norms for male and female adults, based on 2,000 cases. It is therefore possible to compare the performance of occupational therapists in each of the seven subtests with that of the normative population. We ourselves[3] have used the MacQuarrie Test to appraise the mechanical ability of physical therapy matriculants and to determine whether the aptitudes measured are affected by sex and by age. It is applicable also to the study of the hand skills of the disabled, laterality dominance, cross education and training.

The MacQuarrie Test for Mechanical Ability was given to each occupational therapy student to provide first hand experience in test administration and interpretation. When the data collected were examined in relation to previous studies of the mechanical ability, handedness and motor learning of physical therapists, several points of general interest were forthcoming. The purpose of this paper is to present these and elucidate their implications.

MATERIALS AND METHODS

The MacQuarrie Test for Mechanical Ability was administered to thirty-one occupational therapists under standardized conditions. The group was composed primarily of students who had just entered upon the clinical phase of the occupational therapy curriculum. They were young, alert, interested, and responsive. A few of the subjects were more advanced trainees, or affiliates assigned to the Research and Educational Hospitals for preceptorial training; four were members of the occupational therapy staff. Since the scores attained by the latter fell in the middle two-thirds of the frequency distribution, these subjects were considered to be representative of the universe as a whole and no effort was made to relate performance to occupational therapy experience.

The group contained only one male occupational therapy matriculant. It is of interest incidentally to note that his combined score ranked in the 95th percentile. All subjects but one were right handed. The test was taken first with the preferred extremity. Immediately thereafter

*From the Department of Physical Medicine and Rehabilitation, Research and Educational Hospitals of the University of Illinois, Chicago, Illinois.

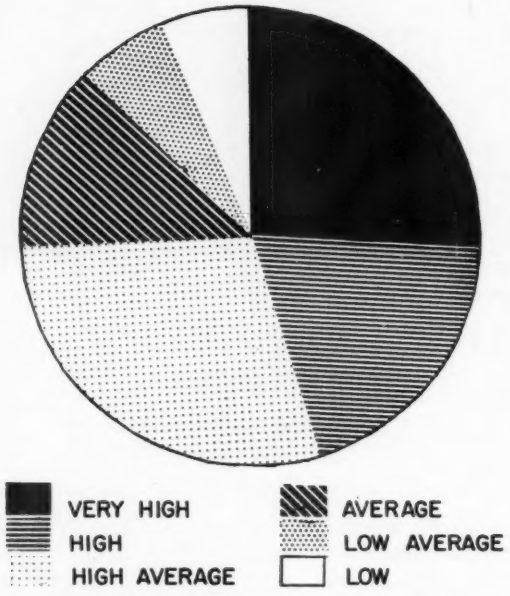

Figure 1. A pie diagram illustrating the distribution of the combined MacQuarrie scores of 31 occupational therapists, 74.17 per cent of whom ranked above average.

it was repeated with the opposite hand. The tests were scored in the usual way and checked by an experienced observer. The right and left hand data were used to derive combined score and subtest dextrality quotients. Johnson's[4] formula was used for the latter (D.Q.=R hand score/R/L hand scores x 100). The sinistral difference was also computed. This expresses the dissimilarity in right and left hand performance in per cent. In the right handed it is usually, though not always, a deficit.

Correct responses only are scored by the MacQuarrie Test. It does not take into account the number of attempts made in the time allowed, which is held constant and measured with a stopwatch. The dotting subtest was therefore selected for the special study of speed and accuracy since it appears to combine the factors of quickness of perception and the eye-hand coordination required for controlled manual movement. The total number of attempts made was taken as an arbitrary measure of speed; the relation of correct responses to total trials, as a measure of accuracy.

RESULTS AND THEIR INTERPRETATION

1. *The mechanical ability of occupational therapists.* In Fig. 1 the performance of occupational therapists is compared with that of the average adult aged sixteen or older. The superiority of the group is striking. Eighty-seven per cent of the right hand combined scores are average or above. Only six per cent are classifiable as low and none rank very low. When the test was performed with the left hand, which was the nonpreferred extremity of all but one subject, 75 per cent of the group still scored average or above.

The single subject who listed the left hand as the preferred extremity was not sufficiently strongly left handed to exceed the combined score attained by the right hand. Her D.Q. was 51.70. Indeed, her right hand was equal to the average in performance, and her left hand surpassed average by 8 per cent. Newman[5] found that left handers are, in both hands combined,

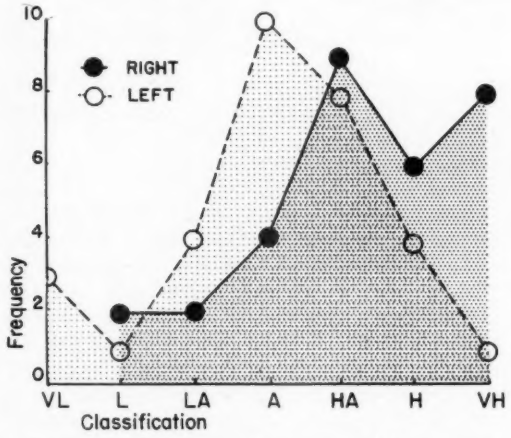

Figure 2. Frequency polygons comparing the performance of the right and left hands (combined scores). VL—very low, L—low, LA—low average, A—average, HA—high average, H—high, VH—very high.

more dextral in their dermatoglyphics than right handers. He interpreted this to mean that the left hands of left handers tend to be dextral and there is only a slight tendency for the right hands of left handers to be sinistral. The left handed occupational therapist seems to bear this out. In dotting, which differentiates the performance of the preferred and non-preferred hands better than any other subtest, the right hand was 25.12 per cent worse than average, but the left was 45.30 per cent better than the mean performance of the 30 subjects who professed to be right handed.

Right and left handed performance of the total occupational therapy group may be compared readily in Fig. 2. The three subjects with the poorest left hands (very low) are the same three whose percentile ranks on the combined scores attained by the right hand were below 50, as illustrated in Fig. 3. Even so simple a graphic presentation of data makes it possible to identify individuals who deviate significantly from mean performance. The interested teacher may determine by subsequent observation whether the trait under study affects professional competence.

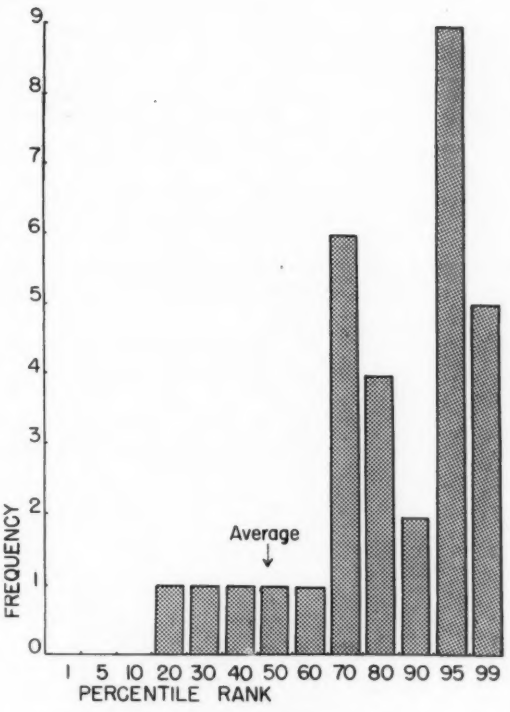

Figure 3. A frequency histogram of the combined score percentile ranks of 31 occupational therapists. The norms were based on 1,000 males and 1,000 females aged 16 and above.

2. *Laterality dominance.* The MacQuarrie Test for Mechanical Ability was subjected to factorial analysis by Harrell,[6] Goodman,[7] and Chapman.[8] Studies of this type have revealed that acuity of spacial visualization is especially important for success in four MacQuarrie subtests: copying, location, blocks and pursuit. Tracing, tapping and dotting depend more on controlled manual movement whereas quickness of perception ranks high in dotting and location. When the dextrality quotients for all seven subtests of the occupational therapy group were studied it was clearly evident that the hand which performed last gained much from the hand which performed first in copying, location and blocks, all three of which depend more on an intellectual factor than manual dexterity or eye-hand coordination. These tests are not satisfactory, therefore, for the study of handedness. One of the remaining subtests, dotting, successfully separated the two subjects who considered themselves to be left handed from a group composed of thirty-one occupational therapists and sixty-seven physical therapists who were right handed (Fig. 4).

All the traits measured by the MacQuarrie Test are developed to a higher degree by the right hand than the left, but handedness virtually disappears in the subtest requiring least dexterity and greatest appreciation of spacial relationships (Table 1). It is most evident in the subtest which requires quickness of perception in addition to manual speed and accuracy, that is—in dotting.

Examination of the factors of speed and accuracy individually demonstrated that although the left hand was appreciably slower than the right, 38.77 per cent, there was significantly less difference between the preferred and non-preferred hand in accuracy. Indeed, the mean deficit in the accuracy of the left hand of the occupational therapist was only 3.06 per cent. Thus the superiority of the left hand of the occupational therapist may be due primarily to its greater accuracy. In 50 per cent of the experimental group, the left hand was as accurate or more accurate than the right hand in dotting.

3. *The phenomenon of cross education.* Fifty physical therapists participated in a training experiment. They were divided into two groups which were equated in terms of the dextrality quotient of the sum of the first four MacQuarrie subtests (tracing, tapping, dotting and copying). One group practiced weekly with the right hand and the other with the left. On the eighth trial both hands were retested. When the pre- and post-training dextrality quotients of the sum of the subtests were examined, they indicated that, although training the right hand made the group more dextral, training the left hand did not reverse the laterality dominance; the group which trained the left hand was only slightly less right handed than it had been originally.

Examination of the individual subtests brought out one striking point. Training the right hand did not raise the dextrality quotient in dotting, the one subtest known to reflect handedness differences most strongly. This could mean only that the unpracticed left hand had improved more than the practiced right hand. The evidence in support of this deduction is contained in Table 2.

Two points stand out in the data presented in Table 2. These are, first, that the less skilled hand improves much more than the better extremity as a result of direct practice, and second, that almost as much is gained passively by cross education as by training. This means that the changes evoked by training in the neuromuscular mechanisms which control manual dexterity affect the central nervous system bilaterally, and thus tend to equalize the performance of the two hands. It matters comparatively little which hand is subjected to direct training; both profit and the gain is greatest in the one showing the poorest initial performance.

The betterment in all qualities of performance in the left hand of both groups is remarkably

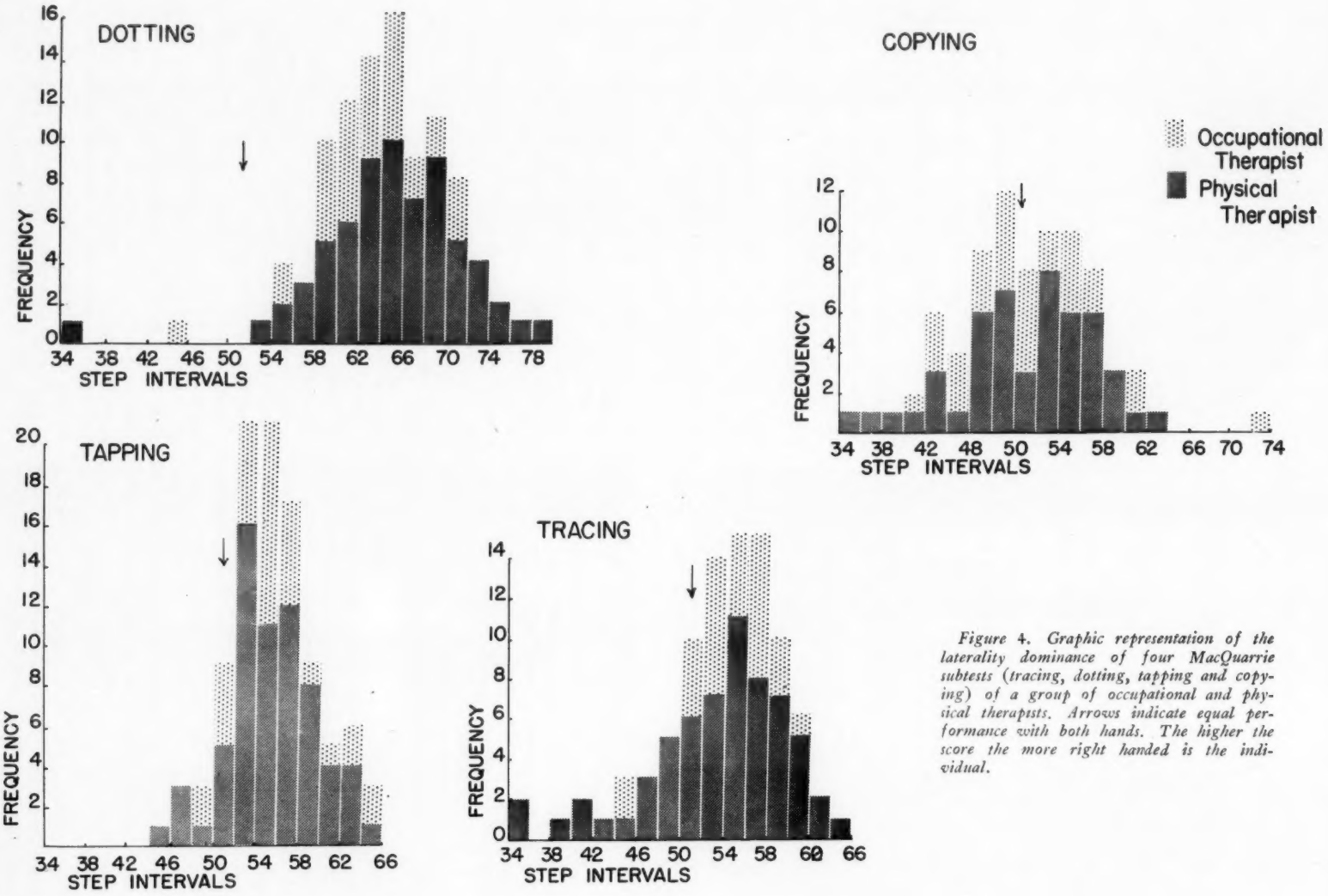

Figure 4. Graphic representation of the laterality dominance of four MacQuarrie subtests (tracing, dotting, tapping and copying) of a group of occupational and physical therapists. Arrows indicate equal performance with both hands. The higher the score the more right handed is the individual.

TABLE 1

The means dextrality quotient of physical and occupational therapists on the tracing, tapping, dotting, and copying subtests of the MacQuarrie Test for Mechanical Ability.

Group	No.	Tracing	Tapping	Dotting	Copying
Physical Therapy	67	53.92	55.05	63.11	50.30
Occupational Therapy	31	53.77	55.46	62.76	50.87

similar. This is not evident in the behavior of the right hand. To understand these differences the raw data should be examined (Table 3). Thus, the gain in performance by the left hand, either by virtue of direct training or cross education, is usually not sufficient to equal the initial record of the better contralateral extremity. There is only one exception to this generalization in Table 3, and that involves the accuracy of the left hand as a result of direct practice. This improved so much that in the end the left hand was better than the right had been initially.

TABLE 2

The transfer of training without practice in the dotting subtest of the MacQuarrie Test for Mechanical Ability.

	Hand Trained	
	Right	Left
Number of Subjects	24	26
D.Q. (Sum of Subtests)	54.22	54.11
S.D. (Sum of Subtests)	—15.26%	—13.86%
Gain from Direct Practice		
Score	28.21%	62.27%
Speed	25.05%	28.95%
Accuracy	2.59%	19.37%
Gain from Cross Education	(L Hand)	(R Hand)
Score	60.45%	23.91%
Speed	26.74%	13.87%
Accuracy	17.58%	7.35%

The right hand improved relatively little in speed by cross education. Apparently the left hand is normally so much slower than the right that the latter learns little from left handed practice. Quite the reverse is true of accuracy. This involves something other than dexterity, namely, quickness of perception and the ability to adjust speed to successful performance. These are mental rather than physical attributes and should therefore transfer readily to the opposite extremity. Thus when the gain in accuracy of the hard pressed left hand is great by virtue of the stress associated with direct practice, the right hand benefits more from cross education than it does when it attempts to improve its already excellent performance by direct training.

The clinical implications of the data presented are self-evident. Too much attention has been focussed on the direct application of occupational therapy to the involved extremity. Treatment of the uninvolved side may augment the strength, skill and speed of the disabled extremity to a significant degree, especially if the latter is the non-preferred limb. We have discussed the mechanisms of this phenomenon elsewhere.[9] Penfield[10] conceives the driving force behind the execution of skilled movements as emanating from a centrencephalic source of voluntary impulses. This he locates in the higher brain stem. The stream of voluntary impulses flows from this central coordinating system to the pre-

TABLE 3

Mean performance on the initial trials of the dotting subtest of the MacQuarrie Test for Mechanical Ability.

Procedure	Hand Trained			
	Right		Left	
	Initial	Final	Initial	Final
Direct Practice				
Score	57.75	74.04	31.12	50.50
Speed	62.04	77.58	40.65	52.42
Accuracy (%)	93.29	95.88	77.02	96.39
Cross Education				
Score	27.71	44.46	56.96	70.58
Speed	38.33	48.58	62.92	71.65
Accuracy (%)	74.36	91.94	91.13	98.48

Score—Number of correct responses in prescribed time.
Speed—Total number of attempts in the time allotted.
Accuracy—Successes/Trials x 100.

central gyrus of both hemispheres. It is already patterned when it arrives, and bilaterally integrated to subserve the needs of the act willed. The phenomenon of cross education suggests that the primary pattern leaves its imprint on both hemispheres and that the central nervous system training which results, manifests itself in improved performance when the contralateral side is called upon to initiate the same movement.

SUMMARY AND CONCLUSIONS

The MacQuarrie Test for Mechanical Ability was given to a small group of occupational therapy students to provide first hand experience in test administration and interpretation and to emphasize the importance of objectivity in the assessment of neuromuscular performance. The data collected were compared with selected aspects of those previously obtained in the study of the mechanical aptitudes, handedness and motor learning of physical therapists. They support the following conclusions:

1. Occupational therapists surpass the normative population in mechanical ability.
2. The superiority of the left hand is greater than that of the right.
3. That better performance of the left hand is due primarily to greater accuracy.

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A PILOT STUDY ON THE RELATIONSHIP BETWEEN WORK HABITS AND WORKSHOP PRODUCTION

A. JEAN AYRES, M.A., O.T.R.

The United Cerebral Palsy Association of Los Angeles County maintains an industrial production training workshop. Part of the vocational training utilizes work contracts which are obtained from local industries. It is the objective of this center to explore the vocational potentialities of the adult cerebral palsied and to increase the potentialities whenever possible. While a few of the trainees have had some previous work experience, for the most part their first vocational experience is found in this training program. Trainees are paid by the piece whenever possible.

Obviously, one of the most important factors lowering the vocational potential is the physical incapacity due to cerebral palsy. It has been recognized that there are other factors which are also important. Whitehouse[5, 6] has pointed out that those who have had physical handicaps from an early age have frequently lacked development of the attitudes which are expected of the working person. This same author further points out that those dealing with the young handicapped are apt to be unaware of the importance of work habits.[6]

Industry has recognized the importance of work habits and has included their evaluation in rating reports on workers. A typical evaluation form rates ability to learn, quantity of work, quality of work, industry, intiative, cooperativeness and knowledge of work.[2] Another study determined that the deficiencies preventing promotion were not so much lack of skill as lack of initiative and ambition, carelessness, non-cooperation and laziness.[4] That the physically handicapped can produce efficiently was borne out by a survey conducted by Harvey and Luongo.[3]

The above quoted sources are representative of the literature on these subjects. In general, then, it has been pointed out that those who have been physically handicapped from a very young age are not apt to develop desirable work habits. Good work habits are important in industry, and it is possible for the physically handicapped to produce in quantity as much as the non-physically handicapped if properly placed.

TABLE I

Letter	Dexterity Rating	Average Unit Production Per Hour	Dexterity-Production Ratio	Work Habit Evaluation
A	40	108.438	2.71	48
B	60	141.312	2.36	45
C	30	54.740	1.83	45
D	42	185.887	4.43	92
E	23	44.359	1.93	51
F	37	177.074	4.79	86
G	63	112.558	1.79	27
H	16	40.566	2.54	75
I	31	1228.906	4.16	90
J	39	68.325	1.75	73
K	38	104.991	2.76	53
L	35	46.126	1.32	29
M	33	84.808	2.57	66
Total	487	1298.090	34.97	780
Mean	37.461	99.853	2.69	60
Standard Deviation	12.86	49.09	1.13	22.0

Just how much work habits can contribute to quantity of production or, conversely, can limit production does not seem to have been investigated and recorded. Since the cerebral palsied group receiving training at the United Cerebral Palsy Center in Los Angeles represented a group with a typical developmental background, it seemed wise to conduct a pilot study to determine the possible influence the trainees' work habits were having on their production.

METHOD OF PROCEDURE

1. *Selection of test subjects.* The trainees working on the contract involving packaging ball-point pen refills were selected to participate. In order to avoid the learning factor, only those trainees with at least 74 hours experience on this project during the three months immediately preceding the test days were used in the study. A further qualification was that each trainee work a total of at least 50 hours on the project during the test days. Fifteen trainees qualified under

these conditions. Of these, one subject was disqualified because she had special training in work habits in occupational therapy, and a second subject was disqualified because accurate work-time data were not available. This left thirteen trainees to constitute the subjects of the study. Each of these is designated in this paper by a letter.

2. *Selection of test days.* Because of the nature of this particular work project, the work days selected for establishing the average hourly production were the first three work days of six successive weeks.

3. *Evaluation of average production.* The production being evaluated consisted of placing a ball-point pen refill into an envelope (one unit) and placing twelve of these envelopes into a box. Two small springs were included in the box. Each box, then, consisted of twelve units. Production records in terms of units were kept by the workshop personnel.

The amount of time spent in producing these units was taken from the time card of each trainee, subtracting the time spent on other activities, such as in occupational therapy. Dividing the total number of units produced during the test days by the hours worked on those units gave the average hourly production. Occasionally a trainee would spend the day on two different work projects, and the time could not be determined accurately for that day's work. In that case neither that day's time nor production was included in arriving at the average hourly production.

4. *Evaluation of physical capacity to do the job.* Since production on this project was obviously affected by the degree of physical involvement of the cerebral palsied trainees, it was necessary to determine objectively the degree of that involvement. Stuffing the envelopes with refills was an upper extremity task. The only reason for using the legs was to go to a central cart to pick up supplies. As those who could walk always picked up the supplies for those who could not, it was decided not to evaluate lower extremity function.

Upper extremity function was evaluated by use of the block and bowl test, which tested the speed with which a subject picked up one-inch wood cubes one at a time from one bowl and placed them in the other. The score was the number of blocks transferred. The physical construction of the test keeps the bowls in the same relationship to each other. When given to each trainee participating in the study, the following factors were held constant. All testing was done between 2:30 and 5:00 p.m. on one of two successive days. The same table, same instructions and same tester were used. Each trainee was given a trial practice, then each hand was given two tries, each consisting of one-half minute. The total of the better score of each hand constituted what was called the dexterity rating.

TABLE II

EXAMPLE OF WORK HABIT EVALUATION FORM

1. Punctuality: consider arrival at work on time and return from "coffee breaks" on time.

1	2	3	4	5	6	7	8	9	10
Trainee A		Trainee J	Trainee C	Trainee F	Trainee B Trainee L	Trainee M Trainee I	Trainee K Trainee H	Trainee E Trainee G	Trainee D

Least frequently on time — Most frequently on time

5. *Establishing the dexterity-production ratio.* In order to arrive at a figure which would give an indication of how many units were produced by a trainee in relation to his dexterity, the average units produced per hour were divided by the dexterity rating. Thus, if a trainee with a dexterity rating of 10 produced 100 units per hour, his dexterity-production ratio would be 10. If another trainee who was twice as speedy on the dexterity test (20) also produced twice as much (200) he would also have a ratio of 10. These two trainees, then, were assumed to be doing the same amount of work for their physical capacity. It is realized that this is an arbitrary means of ruling out the role of physical incapacity in production. This ratio, as well as

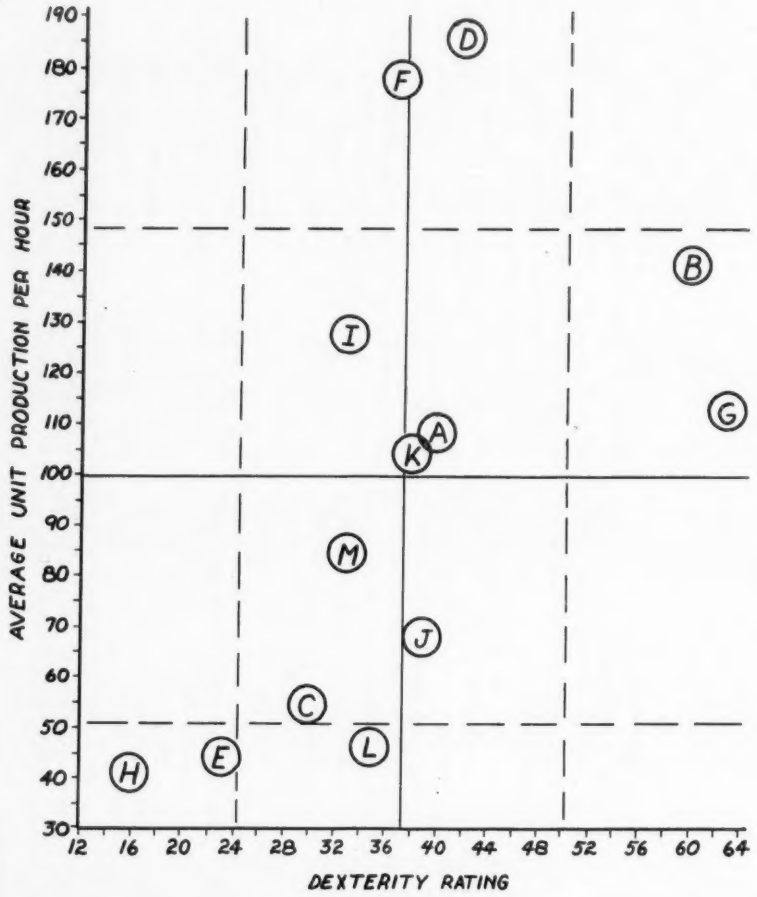

TABLE III
CORRELATION OF DEXTERITY AND PRODUCTION

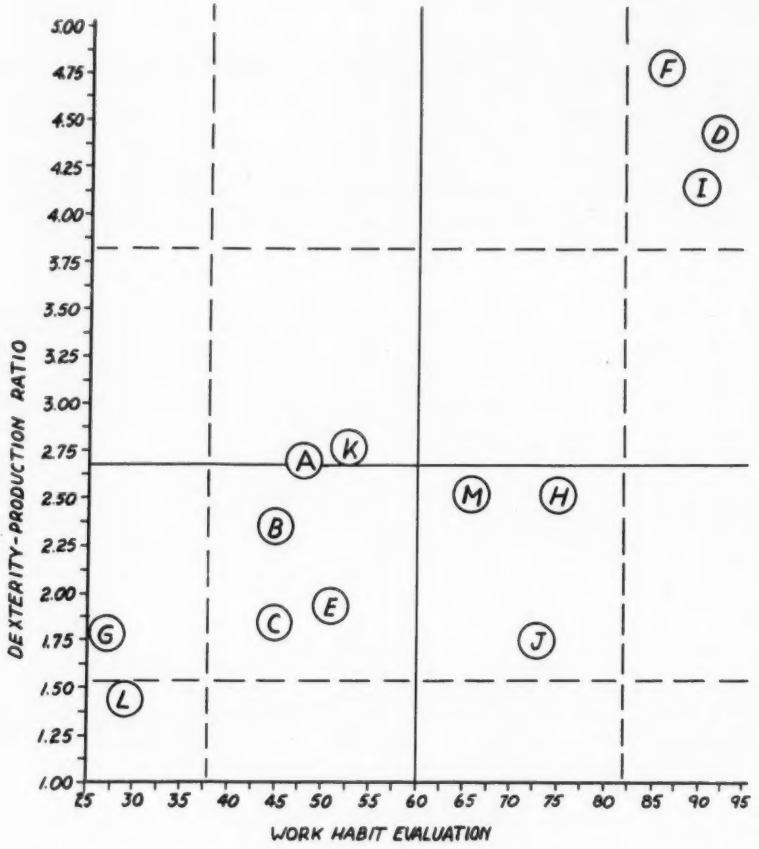

TABLE IV
CORRELATION OF WORK HABITS
AND DEXTERITY-PRODUCTION RATIO

the dexterity rating and average hourly unit production can be seen in Table I.

6. *Evaluation of work habits.* To evaluate the work habits of the trainees involved in this test, a form was constructed on which each trainee was rated on ten different work habits. The traits were chosen for their importance in this particular work project. Work habits related to human relations were not included in the study. Judgment (and consequent numerical score) was made of each trainee in relation to the entire group.

Table II gives an example of the format of the form. The name of the trainee best in the group in that particular trait was placed in the tenth space, while the trainee having the least amount of the trait was placed at the other end. If several trainees were the same in any trait, all of their names were inserted in the same space. This evaluation was performed by the shop supervisor of the trainees.

The form presented the work habits in the following manner:

1. Punctuality: consider arrival at work on time and returning from "coffee breaks" on time.
2. Orderliness: consider organization of work space and systematic approach to doing the work.
3. Personal application to job: consider voluntary steady support, leaving work space only when necessary, and refraining from visiting with other trainees.
4. Initiative: consider ability to go ahead with work without being told every detail and ability to make improvement in each situation "on his own."
5. Responsibility: consider attitude toward accepting, assuming and following through with responsibility.
6. Dependability: consider degree to which trainee does what he is asked to do or says he will do, such as punching time cards correctly or following other instructions.
7. Thoroughness: consider how conscientious trainee is in attention to details that make for thoroughness. Consider lack of inspection rejects because of incorrect numbers.
8. Neatness: consider meeting the standards of cleanliness and neatness in the finished product. Consider lack of rejects for this reason.
9. Interest: consider maintaining constant interest in the work project as opposed to interest which is fleeting.
10. Concentration: consider attention directed to work, as opposed to day-dreaming or being easily distracted. The work habit evaluation score consisted of the total of the ten numerical scores each trainee received.

The work habit evaluation score consisted of the total of the ten numerical scores each trainee received.

RESULTS

The numerical results of the study are shown in Table I. Graphic presentation of the roles of manual dexterity and work habits in determining the quantity of production is found in Tables III and IV. In these tables the solid lines crossing at approximately the center of the graphs indicate the mean (average) of each evaluation, that is, the mean of all dexterity scores, the mean of all work habit evaluation scores, etc. The dotted lines indicate one standard deviation above and below the mean. Interpretation of this data is done by evaluating the comparative scores of those trainees differing significantly from the group average.

As would naturally be expected, the correlation between manual dexterity and quantity of production is high. Establishing the coefficient of correlation by rank, the result is + 0.80. The scores of two trainees fell more than one standard deviation above the mean unit production per hour but fell close to the mean in dexterity. Three other trainees' scores fell below one standard deviation in production. Two of these fell similarly below one standard deviation from the mean dexterity. The third fell close to the mean.

The dexterity-production ratio was designed to indicate, as closely as possible, the amount of production relative to the physical capacity to produce. The correlation between the resulting dexterity-production ratio and the evaluated work habits was + 0.76. The scores of three trainees fell more than one standard deviation above the mean dexterity-production ratio, while one fell comparably below. The same three who were high in their ratio, were more than one standard deviation above the mean score of work habits. Two trainees' scores fell more than a standard deviation below the mean score of work habits, one of whom was the same trainee whose score fell low on the ratio.

To determine, partly out of interest, the relationship between dexterity and work habits, the correlation was established and found to be −0.21.

DISCUSSION

The fact that an insignificantly low negative correlation was found to exist between the work habit evaluation and manual dexterity indicates that the evaluation form did not unintentionally test dexterity. It might further be supposed that increased physical capacity did not necessarily bring about the experiences which presumably help develop good work habits.

The two subjects who scored highest in production in spite of average dexterity also scored exceptionally high in work habits. The third trainee scoring high in his dexterity-production ratio also scored high in work habits. It is logical to presume, then, that the production record of these three trainees was largely dependent upon good work habits.

The two trainees scoring high in dexterity but not comparably high in production both fell below the mean in work habits. One trainee scored more than one standard deviation below

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HOSPITAL LIBRARY SERVICE TO PSYCHIATRIC PATIENTS

LILLIAN A. WAHROW*

"A modern hospital for the treatment of psychiatric disorders creates an environment, a kind of culture, made up of pieces taken whole from the general culture of the race but fitted together in a pattern neatly arranged for the special needs of patients."[1] Thus Dr. Hamilton describes the mental hospital as a cultural pattern in which the patient finds warmth and acceptance, a program of activities suited to his own needs, and an environment which can be adjusted to meet his growing capacity for responsibility. Here he feels secure, while at the same time he is guided by suggestion and example to learn a more effective way of living. Within this unique community the library seeks to serve each person in terms of his own needs and abilities. Library service to psychiatric patients as described here is such as is practiced at the New York Hospital —Westchester Division. The hospital has facilities for 332 patients, many of whom are of superior endowment and education. A majority of the patients use the library, and because they remain in the hospital for several months at the least, we have time to become acquainted with them and to meet their needs individually.

The psychiatric patient must of necessity be temporarily deprived of some of his liberties, yet this denial must be no greater than is essential for his care. Patients who have always enjoyed access to books and magazines will continue to appreciate them during their illness, now even more so because of their enforced isolation. The hospital library fills a need which has been a part of the patient's daily life. Convalescent patients on open halls come to the library themselves; sicker patients on closed halls receive weekly visits when they may make selections from current magazines and from about 100 volumes on the book cart, with the opportunity to request special titles for future delivery.

This is the minimal role of the hospital library, but because reading is an individual experience, the library has special opportunities beyond this in the therapeutic program. The commodities which it has to offer are two: books, with their unlimited possibilities for the enrichment of life, and love—the love which every patient needs and which is manifested in the consideration with which books are offered to him. The librarian gives affection and personal attention, and demonstrates respect for personality as she brings to each patient the books which will help him to redirect his energies into healthy channels. The patient, whose self-esteem has been shattered by his inability to manage his life, is acknowledged to be an intelligent being capable of reading on a high level. He is given the opportunity to make his own choices in the selection of books, to ask for something and get it, or to refuse books entirely, if he so desires.

Like other activity programs at the hospital, the purpose of the library is to tempt the patient back to life. Books are used to turn his attention away from himself to something external to himself, to replace his destructive emotions with constructive thoughts, and if possible to help him enjoy again some of the solid satisfactions of reading. To accomplish this every patient is personally invited to use the library, and is given any assistance that he needs or wants in finding the book that gives him pleasure.

The librarian must use every means she can devise to learn what kind of book will appeal to the patient. Close observation of his appearance, behavior, his remarks and even the personal possessions in his room may yield a clue. Here the physician can be helpful when he informs the librarian of any hobbies which the patient has enjoyed, or of any of his special aptitudes and interests. New reading interests may be difficult to cultivate at the beginning of the period of hospitalization when the patient already finds himself surrounded by many new situations. A familiar book, or one in a familiar field, will not only be more appealing but will add to the patient's feeling of security. No one can be compelled to enjoy anything, but if the patient shows the slightest spark of interest the librarian can feed it with a continual supply of appropriate reading.

A patient may be found inactive and preoccupied when the bookcart is brought to his hall. Perhaps we have been informed of one of his former hobbies, or of some special interest. A book on the subject has been conspicuously placed on the cart and he is encouraged to look over all the books. Included on the cart are current best-sellers, short stories, adult picture books and a variety of other fiction and nonfiction, all in colorful jackets. He may select some himself, or with assistance. Or he may reject the library entirely. In this case perhaps he is not yet ready to read. He has received

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attention, however, and the librarian will disregard his lack of response and will continue to speak to him every week. It will be indicated that books are available for him whenever he wants them.

The librarian's manner is casual and friendly, but she is serious in accepting patients' requests for help. Her attitude is that the library exists so that people might have fun with reading. Indirectly, something of her own feeling for books, and the sense of excitement in the printed page, will be communicated. Intangibly she makes the patient aware that here in a book is a piece of life—the challenge of ideas, the acquaintance with new worlds and a vicarious participation in the emotions and lives of other people. Literature is revealed not as an escape from living but as an experience in living.

It is in the nature of books that one leads to another. Whenever a patient shows interest in reading of a special kind, books of the same type or on an associated subject are set aside for him *without his requesting them.* In this way he can be lead to constantly expanding interests, and the enthusiastic response of patients to this anticipation of their likes reveals that they are pleased with the attention. "You make us feel like individuals," remarked one patient. "You sent all those books on art for me." Or a patient may remark that he has visited Rome and loved it. The next week he receives a lavish book of photographs of Italy and a copy of Eleanor Clark's "Rome and a Villa." The succeeding week he is brought a picture book of France, which is introduced as one in the same series on countries of Europe, along with a recent popular novel from Italy. This sort of thing can go on indefinitely, and it is one of the most important parts of the library's work.

Although reading is usually a private experience, the arrival of the book cart on the patient's hall is a social occasion. Every patient is invited to see the books, and a relationship is established with the librarian and with other patients who have come to exchange their books. Here individual attention is given within the group setting. What are the needs of the patient which go beyond books? Is he fearful, suspicious, angry, lonely? Some people will need an extra large amount of the old prescription of tender, loving care. One person may need to be drawn into the group around the bookcart and to be made to feel that he has a place there. Or it may be that association with others is so painful for him that he will wait until everyone else has left, and then will come alone to select his books. Another patient may be mute, and by empathy and observation the librarian must try to understand what he cannot say. Another may have advanced to the level of wanting to establish a social relationship, but he may be unable to take the initiative or to carry on a conversation. Some are glad to talk and to exchange news and opinions. A few women will look at the cart but quickly become discouraged and walk away. If the librarian seeks them out and says "Maybe if we look together we could find something you would like," they often seem to find the support they need, and return to accept a book.

Some patients distrust suggestions and misinterpret them; others are so unsure of themselves that all decisions must be made for them. One young man liked to read poetry but would have been mortified to ask for it. "Accidentally" a collection was left on a table outside his room. Also by "accident" it was a pocket sized edition, small enough so that he could conceal it inside his coat lest anyone should see him carry it around. A number of overactive patients must be dissuaded from borrowing ten more books before they have finished the six they already have. To some patients, however, each book is an expression of love, and for them the more the better. They revel in abundance and are happy to be surrounded by the works of their favorite authors or by intriguing new titles. Even though they receive more than they can use, the mere physical presence of the books in their rooms is companionable. Some patients may have a diminished capacity for feeling. This must be appreciated when they complain that they cannot find a good book. Much of the satisfaction of reading novels and poetry, in fact of all reading, is an emotional response. Patients taking shock therapy are advised to read short, simple pieces. They must be repeatedly assured that the confusion and memory loss which they suffer is temporary, and that in time they will again be able to read as before their illness.

Additional opportunities for socialization occur at the evening book review programs and discussion groups. Here groups of thirty to sixty patients meet to hear another patient discuss a book or speak on some subject with which he is familiar. Meetings are informal with questions and discussion from the audience a regular feature. Help in preparing a talk is available to those speakers who need it. Even those patients without experience in public speaking will usually do remarkably well on these occasions. Many of them question their ability, and their success is an enormous boost to self confidence and morale.

Others gain confidence by assisting with clerical routines in the library. Some patients want to know that they can be genuinely useful. Their

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WORKING AS A TEAM

The Occupational Therapist in a Rehabilitation Center

JUNE SOKOLOV, O.T.R.

Occupational therapists in general have recently been giving a great deal of thought to defining their function. They have been playing on the "rehabilitation team" for a good many years. During the gradual emergence of the "team" they have been drawn into attempting to play various positions on it and today they are keenly aware of the need to isolate that special core of service which is uniquely and solely the discipline of occupational therapy. Only by such prior analysis of function can we hope to arrive at the synthesis which adds up to integration of services around the client's needs. When we know what we can offer we shall need to be neither exclusive nor prodigal in our approach to the patient requiring rehabilitation services.

It would seem that the distinctive skills and functions of the occupational therapist working on the rehabilitation team may be classified broadly as follows for purpose of clarification.

Occupational therapy may be used as a diagnostic tool or aid. This is common where there is some question as to the cause of illness. The occupational therapy unit closely resembles a laboratory where it is possible to observe the patient in an atmosphere of comparative normality. This would be particularly applicable in rehabilitation centers which treat the psychoneurotic patient, the suspected malingerer, the idiopathic epileptic, all instances where variation of the situation and the medium will tend to produce useful information for interpretation by the physician, the counselor and other professional personnel.

In this connection the occupational therapist is utilizing his professional training as a *skilled observer* and he is *evaluating* and *recording* the response of the patient.

The second function may be defined as *planning and administering treatment.* It is my personal conviction that too many therapists have been frightened into a state of inertia by a mistaken emphasis on getting every detail of treatment straight from the doctor's lips. Physicians have pointed out that they are concerned with the board physiological status and needs of the patient and may, and should, expect from a competent therapist the ingenuity and capacity to plan a purposeful, graded program of specific therapeutic activities. It behooves us to assume this responsibility and also the provocative task of interpreting our treatment plan to the physician. We lose our capacity to judge and perform as anything but automatons if we fail to do so. There is no substitute for a clear understanding of our own function and the capacity to express this vigorously and succinctly to doctors and professional colleagues. With all due respect to the major contributions of our professional organization in this area, it still remains the province of the individual therapist to fashion from existing definitions a personal credo and an operating scheme and to verbalize this effectively and unhesitatingly.

There are, by more or less common agreement, three general types of occupational therapy administered in comprehensive rehabilitation centers. Kinetic occupational therapy implies the use of specific activities to promote range of motion, strength and coordination. The patient is generally referred at the point where some active motion is possible and the therapist uses his battery of tools; i.e., crafts, manual skills, educational or recreational media to gain the desired results.

Functional occupational therapy (in the area of physical disabilities) has come to mean training in the activities of daily living and self-care which are essential to personal independence. Included here are such items as dressing, feeding, written communication and homemaking skills.

Occupational therapy directed toward the establishment of prevocational aptitudes and interests is another area of practice. Severely disabled patients may have recovered good function and still be far from ready for a return to productive enterprise. The occupational therapist is here concerned with practical manual dexterity testing, job demands, duplication of the work situation, establishing work tolerance and habits and/or evaluation of the client for sheltered or routine employment. Obviously this is the area in which the therapist works hand-in-glove with the vocational counselor. His results may be either in substantiation or revocation of prior psychological testing. Again the occupational therapy unit acts as a practical laboratory duplicating a normal atmosphere.

In creating and effecting treatment programs, the occupational therapist must bring into play the varied skills of *planning, interpreting, designing and adapting and teaching.* He plans a graded exercise program geared to the patient's needs. He must interpret it effectively to the

patient (and often to the physician) in order to insure success. He must frequently design and adapt the equipment, the apparatus, the craft, to achieve the motion desired. He must summon the skills of the teacher to communicate the purpose and method of performance.

For want of better terminology we may label another function of occupational therapy, *assisting with the patient's social adjustment.* Let us immediately establish the fact that the occupational therapist seeks only to create a cheerful, productive working environment and to use his media as webs of interest with which to enmesh the patient and draw him away from preoccupation with self. It is the social worker who "treats" the patient and "manipulates the environment." In the rehabilitation setting there are a hundred opportunities daily for stimulating the assumption of responsibility and for fostering group living. As examples, witness the preparation of lunches, clean-up, recreational activities, maintenance of patient bulletins, newspapers, patient-staff meetings, special classes, as a few common occurrences. The atmosphere is the catalyst. Socialization is the goal.

To this job the therapist brings his knowledge of personality structure and group interaction. Again he may *plan, structure, observe, treat, evaluate.* All are a part of his function within the occupational therapy setting. Needless to say he will be more effective in this area with assistance from team members such as the psychologist and the social worker.

Obviously another function of occupational therapy is *periodic evaluation and goal-setting for patients.* At these times the therapist may well ask himself certain basic questions which can illuminate and point up the changing focus and goals of therapy. Such questions might include:

What are the basic problems?

What goals, immediate and long range, may we reasonably expect?

Are duration and frequency of treatment adequate? Is a home program indicated?

Are there needs for special equipment? apparatus? at the center? at home?

What integration with other services is essential? How may this best be achieved?

What recommendations are in order with reference to medical or psychological review?

This is the kind of regular stock-taking that is an essential in each rehabilitation service if we are to arrive at realistic goals and see the patient move along at his maximum speed toward social and economic assimilation.

Here we see the emergence of the occupational therapist's *integrative function.* Complexities of total rehabilitation notwithstanding, the therapist cannot serve his patient well until he learns the relationship of occupational therapy to physical therapy, to speech therapy, to personal and vocational counselling; until he is just as actively concerned about the need of a patient for surgical repair or bracing or financial aid or psychological testing as is the doctor, the physical therapist, the psychologist or the social worker. And his concern must find its answer in skilled communication with colleagues, *not* in personal, makeshift implementation.

Occupational therapy also has a role to play with those patients who have a poor vocational prognosis. The therapist is in a key position to explore avocational pursuits and to help the patient develop such hobbies and selective interests as will fill the void in an otherwise meaningless existence. His knowledge of the community and its gamut of volunteer services can often gear the nature of these avocational pursuits toward more purposeful end results. More than one elderly disabled woman has found some self-esteem in rolling bandages or sewing garments for foundlings.

So much for specifics. There remains the larger and more demanding *role of "playing on the team."* There are certain unrelenting steps in the process of relating to others, too well-known to be enumerated here. It has been found that, basic to real co-operation, is a spirit of sincere inquiry into allied disciplines and a broad welcome to similar overtures from our co-workers. We need to strive continually for a work-setting in which the premium is placed on the daily practice of individual responsibility and dynamic group inter-action. This takes infinite pains and administrative fostering. We must know undeniably and be able to interpret to our administrators that a job well and wholly done with one severely disabled client is worth ten quick turnovers where we are neither concerned with nor essentially effective in the final outcome. We must urge without hesitation the practice of t h o s e admittedly time-consuming methods that add up to group interaction; i.e., staff meetings, inter-and intradepartmental conferences, field trips to other occupational therapy departments, joint evaluation of patients with other members of the professional team, routine attendance at clinics, and other proven methods of integration.

The therapist on the rehabilitation team may well have additional responsibilities for *administration, education, study and research.* It is not our province here to discuss the skills involved in administration.

The function of the occupational therapist as an educator is manifest in his relationship with the patient, his staff members, his colleagues in

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OCCUPATIONAL THERAPY FOR THE POLIOMYELITIC

FRANK P. DARGAN, O.T.R.

Anterior poliomyelitis is the result of a general systemic infection, the brunt of such infection being borne by the anterior horn cells of the central nervous system. The causative organism is a virus which has an affinity for nerve cells in which it reproduces itself thereby causing damage to, or destroying, the cells. This polio virus is so minute that it cannot be seen even by a powerful prism microscope. In 1953, however, it was photographed in its pure form through an electron microscope at the University of Southern California, and this achievement aided the intensive studies being made of its characteristics. It has been established that there are three main types of polio virus, each different in character and each causing different degrees of severity ranging from a mild attack to one causing rapid death. Divergent theories exist regarding the method of infection and the course the virus takes after its entry into the body. It is agreed, however, that infection is probably received from personal contact with a person having the disease in its full symptomatology, or during the incubation period, which may be from seven to thirty-five days, but is usually about fourteen days; or possibly from a "silent" carrier. Infection may be transmitted by intimate personal contact such as kissing, sharing of eating or drinking utensils, towels, foodstuffs, etc.; may be caused by droplet infection from a cough or sneeze; or carried by flies and dust. The virus has been found in drinking water and in swimming pools so that entrance to the gastro-intestinal tract may be gained in this manner. In brief, the virus is passed from a poliomyelitis patient, or a carrier, by any discharge from the alimentary tract, whether it be the oral or nasal discharges, or the rectal faeces.

SYMPTOMS

The symptoms vary with individual cases and frequently, in the early stages, are suggestive of a common cold and are, therefore, oftimes treated indifferently by the sufferer.

Dr. Edgar J. Huenekens, clinical professor of pediatrics at the University of Minnesota Medical School and director of the Sister Kenny Foundation, describes them thus:[1]

"The first symptoms are usually one or more of the following: fever, malaise, headache, nausea and vomiting. Except in unusually severe cases there is no stiffness of the back or neck and no muscular pain. A positive diagnosis cannot be made at this time since all the symptoms are compatible with an upper respiratory tract infection . . . Fortunately most children with the above symptoms recover completely, either because they have a common respiratory tract infection or an extremely mild case of poliomyelitis.

"However, if after several symptom-free days the fever begins to rise again, we may have the so-called second stage of poliomyelitis. At this time the symptoms presented in the first stage return in a more severe form. The fever is higher and more sustained, the malaise is more apparent, and headache and vomiting more pronounced. Now definite symptoms of poliomyelitis may appear. The patient complains of pain in the back and neck and frequently in one or more of the extremities. On examination stiffness of the back is noted and there is an obvious resistance when the examiner tries to bend the neck forward."

Two types of poliomyelitis are commonly met with: (1) the spinal form in which the nerve cells of the musculature below the neck are affected, and in this the muscles of the trunk, extremities, diaphragm and respiratory system, and the face are involved; (2) the "bulbar" type which attacks the nerve cells in the medulla—the so-called bulb of the brain where the spinal cord joins the brain. These nerve centers control swallowing, breathing and circulation. The bulbar form of poliomyelitis is the most fatal, and in the year 1952 caused 22.5 per cent of deaths reported to the National Foundation for Infantile Paralysis.

Spino-bulbar, a combination of the former two forms, has the most serious paralytic effects, and accounted for 22.3 per cent of reported deaths in 1952. The spinal form accounted for only .6 per cent in the same year.[1]

The virus enters the alimentary tract and from there passes directly to the anterior horn cells of the spinal cord where, by direct destruction and by the associated edema caused in surrounding areas, it causes widespread paralysis of the dependent musculature.

In the early stage, due to the invasion of the anterior horn cells and to resultant damage to fringe cells, the paralysis presented may be quite widespread, but this is no indication of what the residual paralysis, if any, will be.

The disease has three stages: the acute, the convalescent, and the residual or rehabilitative stage, sometimes called the chronic stage. The acute stage lasts from the first onset of symptoms through the onset of paralysis and atrophy of the affected muscles, and until the patient's temperature drops to normal and stays there. The convalescent stage commences after subsidence of the acute symptoms and tenderness of muscles, and lasts until spontaneous recovery ceases and the paralysis is stationary. The residual, chronic

or rehabilitative stage commences when no further recovery of muscle power can be expected. This is generally placed at eighteen months, though in many cases, through rehabilitative procedures, further gains have been made up to three years.

During the acute stage the patient is kept at rest with the limbs splinted to maintain the affected muscles in the optimum position of rest. Hot packs are applied at frequent intervals to relieve pain and muscle spasm, and splinting or sandbag supports may be necessary to prevent deformities. The Sister Kenny method of treatment stresses frequent hot packs, at two-hour intervals, and the affected limb being taken, by a Kenny therapist or nurse, through a series of coordinated and rhythmic movements. In cases where the diaphragm or other respiratory muscles are involved the patient will be nursed in a respirator, or "iron-lung," either for the full 24 hours of each day or taken out for rest periods, dependent upon the severity of each case. Less severe respiratory cases may be nursed in a chest-piece respirator.

During the convalescent stage, the patient is on a graded program of exercises ranging from the passive to non-weight bearing, swimming and underwater exercises are given, and preventive measures are taken to prevent deformity, shortening or stretching of muscles. Abduction, cock-up or other splints may be fitted to the upper limb, short or long leg braces for the affected lower limbs, and girdles or spinal jackets for abdominal or spinal muscle paralysis.

In the residual stage, surgical and mechanical procedures will be undertaken to correct deformity, reestablish muscle power, and to stabilize flail joints to restore function. Permanent residual paralysis is assessed and braces, splints or jackets modified or fitted accordingly. Surgical procedures such as tenotomies, tendon lengthening or osteotomies may be performed. Stabilization operations such as an arthrodesis of the talo-mid-tarsal joint to correct a flail ankle, or arthodesis of the shoulder joint where there is paralysis of the deltoid—so that the scapular muscles can then perform abduction of the arm—may be necessary.

OCCUPATIONAL THERAPY

Ours is a vital therapeutic agent in the treatment and rehabilitation of the poliomyelitis patient. The treatment plan should be well considered for it must, obviously, be different for each person. The occupational therapist must be aware of all aspects of his patient's physical condition and, moreover, should constantly think of the whole person and the psychosomatic implications of the disease. Here we have a disease, the effects of which can debilitate the victim from a healthy, active individual to a human figure incapable of any voluntary function. At times the psychological effects are as damaging to the individual as the muscular paralysis.

Occupational therapy should commence as soon as the patient has passed the acutely ill stage. At first this will comprise reading to the patient, writing letters, arranging entertainment, and engaging in cheerful conversation. The therapist can do much to allay the patient's fears and prepare the way for the active and more specific treatment plan which will follow later.

During the convalescent stage the occupational therapist has many roles to play, but the success of all therapy depends not only upon the therapist, to devise and execute the treatment plan, but upon the understanding by the patient of the aims, and his active cooperation in achieving them. One should always discuss with the patient the exercise and its meaning, the reason for various types of testing, the need for appliances, and any changes that are made. The patient is often fearful, anxious for his future, and many things to him and about him are new and strange. No one therapist can work alone and achieve the best results. Optimum success comes from a combined effort of the team—the psychologist, the physical therapist, the occupational therapist, the vocational counselor, the social worker, and the medical and nursing staff. Each worker knows the patient in his own particular setting and each, making his own particular contribution, helps form a composite picture that is the person who is being treated.

Upon referral in the convalescent or later stage, the occupational therapist should make an evaluation of the patient—his remedial needs, his hopes and vocational interests or ambitions, and his individual cultural and socio-economic needs. In some staff situations this may be done in part by the social workers. The therapist should discuss the treatment and vocational plan with the other workers concerned. It is imperative that the occupational therapist have, and understand, the rating of his patient's muscles, for asking a muscle which rates "poor" to do the work of a muscle which rates "good" or "normal" would be like asking a child to do the work of a man. If the child did attempt to do so, it would soon tire. And so with paretic muscles. A therapist must consider the treatment specifically for each individual patient and should analyze the selected craft and assess its required movements and physical requirements. In many instances sling suspension or some form of support will be required for the upper limbs where there is weakness of the deltoid or the shoulder suspensory muscles. One must consider

its action as a fixator or as a synergist as well as a muscle's action as a prime mover. To cause fatigue of a muscle may cause irreparable harm or, at least, undo the progress already made.

One should beware of stretching paretic muscles and, in this regard, the therapist should consider the joint range of motion concerned. What is stretching a muscle? This term is used in relation to contractured muscles, normal muscles and paretic muscles, and yet the meanings are not synonymous. In a contractured muscle it means exercise, passive or active, to restore it to its normal length; with a normal muscle it refers to injurious stretching beyond the normal length; as in a sprain. With a two-joint muscle, e.g.: the hamstrings, stretching may be caused by attempting to take the two joints through their full range of motion at the same time. In paralyzed muscles, stretching means taking the muscle beyond the point of relaxation or physiological rest.[2] It is recommended that the range of joint motion be restricted so that there is no danger of stretching paralyzed or paretic muscles. As muscle strength increases then the joint range of motion in activity can be increased.

In prescribed occupational therapy where the arm is to increase the strength of weak muscles, the action of such muscles should be isolated. It has often been said that the physical therapists can isolate the muscle action, perform muscle re-education, and that the occupational therapist can work with the limb as a whole and perform general strengthening. This theory can destroy the whole treatment program, for if the activity selected is one which will benefit the unaffected antagonists then it is to the obvious detriment of the weakened agonists. For example, if there is weakness of the intrinsic muscles of the hands and an activity is given which calls for repetitive gripping, as in weaving, unless the patient is observed by the therapist and unavoidable compensatory muscle action prevented, then the long flexors of the fingers—the sublimus and profundis —will carry out the action of gripping, and the extensor digitorum longus will carry out much of the release by extending the proximal phalanges on the metacarpals. This pattern, if allowed to develop, will possibly lead to a "claw hand." In such cases a dynamic splint, of aluminum or duralumin, applied along the forearm posteriorly, and fitted with a lumbrical bar across the dorsal aspect of the proximal phalanges, prevents hyper-extension of the metacarpo-phalangeal joints. This gives the dorsal and palmar interosseii an advantage and assists them to extend the inter-phalangeal joints. Such a splint may also be fitted with an opponens piece which will keep the thumb in abduction and aid in obtaining pronation of the thumb together with flexion at the carpo-matacarpal joint, and so avoid "false" opposition.

Occupational therapy is a valuable adjunct to psychological testing to determine the patient's aptitudes and vocational potential. It helps the patient realize his own capabilities and limitations. He learns how to compensate in many areas for function which, because of his disability, he has lost. He may find an interest in an activity which he has never before considered and which may be suitable as a future vocation. The vocational counselor, the occupational therapist and the other workers concerned should consider the conditions imposed upon and affecting the patient insofar as his participation in competitive employment is concerned.

The occupational therapist should know, may help determine, and should report in a final work tolerance assessment the following factors:

What is his vital capacity—how many hours of activity can he tolerate? What is his physical capacity? What are the demands of the position for which he is being considered? In this regard, all the physical aspects of the job must be considered: such as, is it a sitting or standing job, or both? For what periods? What is the atmosphere and temperature of the work place —is it hot, cold, damp or dry; is there injurious fume, dust or smoke; and how did he tolerate these conditions in the occupational therapy shop? Does the work require bending, stooping, lifting, climbing steps, stairs or ladders? What will be his posture while working? Patients with a residual weakness of the extensor muscles of the back or neck should not be working for long periods stooped over an office desk. What are the transportation problems involved and how can he surmount them? Such factors as leg braces, crutches or canes, or need of a wheel-chair must be considered.

The occupational therapy program should have the following aims:

Muscle re-education and strengthening of the paretic muscles. (A muscle test, performed by a physical or occupational therapist, should be consulted to ascertain what the rating is for all muscles so that demands are not made beyond the patient's muscular capabilities.) Improvement of all musculature where there is evidence of atrophy of disuse. (Care must be taken that the strengthening of agonists, already stronger than their paretic antagonists, does not destroy the chances of improving those weak antagonists.)

The performance of "activities of daily living" (ADL). To enumerate a list of all ADL would, obviously, be too long for this paper, but one should ascertain the patient's ability to feed himself, dress and undress; take care of his personal cleanliness and hygiene—that is, bathroom and toilet activities; his ability to apply and remove any prosthesis or appliance worn; his ability to get from wheel-chair to bed, other chairs, bath tub or toilet, and to and from the floor; his ability to reach for articles on shelves, work bench, or on the floor.

Provision of "self-help devices." Dependent upon the findings of the foregoing evaluation, it may be necessary to provide assistive devices to enable the person to achieve goals which, without the assistance of such aids, would be impossible or difficult. This is particularly important in the activities of eating, dressing and toilet needs. Achieving independence, to a greater or lesser degree, in these areas may mean the difference between invalidism and some worthwhile measure of normal living which later includes some occupation. It may only allow the release from the home of someone on whom the patient is more or less dependent. This may allow a wife, or some other relative, to leave the home to take employment and, therefore, support the home.

Such devices may be supportive straps or slings or cuffs with elastic straps to replace lost forearm flexors or the opponens pollicis. To gain forearm flexion in cases where the opposite shoulder is strong, a shoulder cuff with a cable crossing behind the back to the affected forearm, as in a prosthesis, can sometimes achieve this result. A leather strap fitted snugly around the upper part of the leg can be fitted to hold a toe-spring fitted to the fore-part of the shoe to prevent foot-drop and assist weak dorsi-flexors. This would only be suggested in cases not severely enough affected to warrant the fitting of a single or double-iron, short leg brace.

With wheel-chair cases where there is moderate to severe involvement of the upper limbs, sling suspension is often indicated. In the opinion of the writer, where there is bilateral weakness but where one shoulder group of muscles is stronger than the other, the weak side should never be suspended alone. This causes asymmetry of the body and may subscribe to a postural scoliosis. The arm suspended may be the favored one and, if this is used to the exclusion of the other, return of function occurs in the suspended arm more rapidly than in the unsupported arm. The patient with weak arm or forearm flexors will, when attempting these motions, whether in suspension or not, "hike" the shoulders. That is, he will contract the elevators of the shoulder —mainly the upper trapezius and levator scapulae. This will cause some strengthening of the muscle or muscles used and, if only one arm is used, there will be a noticeable elevation of the shoulder on that side with a corresponding depression of the shoulder on the opposite side.

There are several methods of giving sling suspenion of the upper limb, but the method most favored by the writer is a right-angled ⅜-inch round steel rod with the long bar fitted to the back of the wheel-chair, and the horizontal bar, at right angles to it, about two feet above the patient's head and projecting far enough forward to allow vertical suspension just in front of the

The use of suspension slings as an aid in eating.

body. Usually a ring is fitted to the horizontal bar and a No. 38 extension spring, or a long screen door spring, attached to this. At the bottom of this spring is attached a *D* ring, or a key-ring, which supports a bar, either of steel or Plexiglas, and drilled with a hole, ¼-inch in diameter, at the exact center, and corresponding holes, ⅜-inch apart for its entire length. This bar should be 8 inches long, ½-inch wide, and ⅛-inch thick. The sling straps are passed through *D* rings at either end of the bar—the forearm strap through one ring, and the strap for the elbow through the other. The suspensory spring is then fitted into the center hole of the bar, and the patient's arm placed in the slings (see accompanying photograph). Flexion and extension of the arm and the forearm is tried in the horizontal plane. Then flexion and extension of the forearm is tried in a plane between the horizontal and the vertical simulating bringing food from the table to the mouth. If this is not at first achieved, better results can be obtained by moving the suspensory spring one or more holes either side of the center hole. The requirement differs in every individual and can only be perfected by trial and error. When thus supported, it is important to see that there is no undue pressure over any pressure point of an artery, e.g.: the brachial artery, that the skin is not pinched, and that the patient's posture is as good as possible. Where there is a weakness of the wrist extensors there may be a tendency towards wrist-drop and it is important that the

forearm sling be partly under the hand to prevent this. Provision of a splint may be necessary to prevent this or to offset any tendency towards any deviation ulnar-ward or radially. Provision of a strap or metal attachment to the wrist splint may be necessary to assist thumb opposition.

One should always be careful to avoid stretching of weak muscles and to prevent contractures. Where there is a tendency towards contracture of the finger flexors, the provision of a night splint extending from the forearm to beyond the distal phalanx may be necessary to stretch these muscles.

Another type of upper limb suspension, to assist in feeding, washing the face or for oral care, is the stirrup suspension. With the same overhead suspension a spring and strap supports a ⅛-inch diameter aluminum rod stirrup similar to that seen on a riding saddle. The horizontal bar of this stirrup is fitted underneath an aluminum forearm trough at a point which will give perfect balance and make possible an upward and downward movement of the hand by "hiking" the shoulder ever so slightly, or by some other control dependent upon the remaining function.

This type of forearm trough with a U-shaped hinge permitting a flexion-extension type of movement may also be fitted to an upright rod supported in a firm, flat base. This support, as well as the former one, makes independence in feeding and other activities about the face possible.

Hand cuff holders can be provided where grasp and finger flexion are lost—these can be of leather and elastic, which is probably the easiest and cheapest to make. These cuffs, which fit snugly around the hand, proximal to the M-P joints, are made to take the handle of a fork, spoon or tooth brush, and can be adapted for a safety razor. Attachments may also be made to aid in using a pen or pencil; to hold a lipstick while it is being applied; and in the form of a long extension handle attached to a comb, to enable the hair to be combed by the patient.

The number of appliances which can make life easier for the polio patient is endless, and devising and providing these depends upon the thought, skill and ingenuity of the occupational therapist. Quite often the patient himself will suggest some simple devices.

The following cases, persons with a residual paralytic poliomyelitis, recently under treatment by the writer, may illustrate the foregoing statements and demonstrate how simple achievements can be made which mean so much to the patient who has so little. The writer has chosen these particular cases because it is felt that they present classical symptoms of poliomyelitis, and further, that they demonstrate clearly the need for the occupational therapist to make the patient somewhat self-sufficient, to teach labor-saving practices in housework, and to give studied functional activity.

Mrs. S. I.—Age 29. Spinal poliomyelitis, onset March, 1954.

Mrs. I. was living in Brazil when she contracted polio, and was an isolated case. In a town of 10,000 people, there had been only twelve cases of recognized polio and ten of these were Americans. On a Sunday morning she felt general malaise, was nauseated, and had headache. Felt gradually worse as the day wore on. On the morning of the following day she felt worse, felt general weakness, had severe pain in the back and the nape of the neck, muscles of the shoulders and arms felt weak. Seen by a doctor who diagnosed pregnancy and gave hormonal injections. On the fourth day her temperature was 104 degrees, and for ten days she thought she had the flu. Was treated with vitamin pills and injections of penicillin. Temperature returned to normal. Continued to go to bathroom and was up for one hour each day. Each day she felt gradually weaker, and about the fourteenth day she had trouble in swallowing. Another doctor was called, and upon being diagnosed as a polio case, she was admitted to a hospital. She had facial paralysis, left side worse than the right. Still had pains in the back of the neck at night and could not sleep. Had no control of her arms. Treated with citric acid pills and sedatives. One month after admission, physical therapy was commenced—massage to arms, shoulders and face. Active and passive exercises to weak muscles.

She came to the U.S.A. and was admitted for rehabilitation on July 16, 1954. Had residual weakness of deltoids, trapezeii, left pectorals and upper arm muscles. Extensors of the left elbow were fair plus, and the dorsi-flexors of the right wrist were weak.

In activities of daily living she could not fasten her brassiere behind her, could not wash her back, could not do her hair, and the extensor muscles of the neck tired rapidly when she ironed clothes.

The aim of occupational therapy was to overcome the difficulties in ADL, to alleviate fatigue in home activities, and to increase muscle power.

She was shown how to fasten the brassiere in the front and then turn it around. A long-handled comb was provided for her hair, and a long-handled brush to wash her back. She tried an adjustable-height ironing board enabling her to iron while sitting. The correct height was found to remove strain on the extensor muscles of the neck. Was advised to have dish racks and "lazy suzans" at a comfortable level to avoid reaching and lifting. For functional exercise she was given bilateral cord knotting, with both arms in sling suspension to remove pull of gravity and to allow exercise of the shoulder girdle and arm muscles with minimal resistance. The exercise was carefully graded and as she showed a slight improvement in muscle strength and tolerance, she was up-graded, after three months with treatments of one-hour periods twice weekly, to weaving on a table loom with no resistance other than that provided by the weaving materials.

She continued to show slight improvement and felt much stronger. Her muscle rating for the scapular and shoulder muscles improved from "fair minus" and "good minus" to "good" and "good plus," respectively. The patient was discharged in the first week of November, with instruction to carry on a home exercise program.

* * *

Mrs. D. N.—Age 28. Spino-bulbar polio, onset August, 1953.

Mrs. N., a young woman who had been married for nine months, was employed as a cashier-bookkeeper, and was one of a household of five adults and two very young children. One adult member of the family developed a slight case of spinal polio shortly after Mrs. N. was affected. The children were not affected.

Mrs. N. first felt sick on a Monday, complaining only of sore ribs. She continued to work. Felt worse during Tuesday and Wednesday—sore throat, stiff neck, and could not bring her chin to her chest. On Friday she had loss of balance, weakness of the upper limbs, and could not grasp and hold things. Throat was still sore. Visited a state fair, walked all around the fair. Could not hold a cup of coffee. Her stomach was upset. On Saturday morning she went to work—was relief operator on a switchboard and operated this with great difficulty. Could not open letters. No power in the left, but could still use right. She felt "exactly as though she had the flu." Had to be helped to walk. Could not take food or drink. Seen by doctor in the afternoon—no diagnosis made.

On Sunday morning (7th day), had dizziness, difficulty in breathing, and could not sit up. Complete loss of power in all limbs. Admitted to hospital and placed in respirator for 24 hours per day. Weight on admission, 117 pounds. She was retained in the respirator full time for two months, then taken out for short, but increasing periods. Was allowed home for Christmas—four months after onset. Then back to the hospital, spending her nights in the respirator.

Used the rocking bed for periods of half-hour per day for two weeks. Progressed to sitting up, using a chest-piece respirator, and was gradualy freed from this. A sling suspension on her wheel-chair was provided to aid feeding. This comprised the two arm slings from one ring and was not very satisfactory as she had practically no muscle power.

In February, 1954, forearm splints of duralumin were provided to keep the wrists in mid-position. Later an outrigger to assist extension of the fingers was provided on the right. She still had difficulty in her breathing. The latter had improved by May of 1954. Was discharged to her home in a wheel-chair on July 9, 1954. Weight 97 pounds.

Was admitted for rehabilitation in the latter part of July and was very weak because of effect of hot weather upon her breathing. She had no functional use whatsoever in the left upper limb, and very little in her right. There was asymmetry of the shoulders due to her practice of "hiking"—i.e., elevating—the right shoulder to obtain abduction and forward flexion of the right arm, and also to some return of muscle power in the elevators of the right shoulder. She was almost completely dependent upon others.

The occupational therapist attempted to make her self-sufficient in eating. Slings were provided with high overhead suspension as described in the foregoing. The horizontal cross bar, supporting the arm and forearm sling, allowed for depression and elevation of the forearm. She was able to grip a fork and spoon. By trial and error the correct point of attachment of the suspensory spring to the cross bar made bringing food from the plate to her mouth easy. (See accompanying photograph)

As she could not raise a glass or cup of fluid, a long drinking straw which would reach from the glass upon the table to near her mouth was provided. The chair with removable arms allowed her to sit at the dining room table. She was deprived of one pleasure because she could not eat corn on the cob. This was made possible for her by selecting small, light cobs and inserting a rod in each end for her to grasp. She could not take soup from a soup plate to her mouth without spilling, but the provision of a swivel spoon overcame this difficulty. Except for cutting meat, she is now self-sufficient in eating.

The left wrist, because the wrist splint was too short, and because of lack of attention, had developed ulnar deviation. A new splint was obtained to correct this. This splint, as well as the new one for the right, had a lumbrical bar to prevent hyperextension of the proximal phalanges, an opponens piece to prevent adduction contractures of the thumbs, and "outriggers" to keep the fingers in extension. The right index finger, which is always used for grasp, was developing a flexion contracture at the proximal inter-phalangeal joint. Use of the "outrigger" at all times except when actually using the hand, and the use of an extension splint on the full palm of the hand at night were advised to correct this.

Her occupational therapy, for its tonic and supportive value, comprised stenciling Christmas cards and weaving on a very small, light table loom. This activity could only be carried on for a few minutes at a time.

There has been little return of function beyond the amount she had in July in the right arm, and there has been none in the left. She is able to do her hair, apply cosmetics and write her own letters, but beyond this she is still dependent. Rolling over in bed has been tried but cannot be achieved due to generalized muscle weakness.

SUMMARY

These cases demonstrate the resemblance of early polio to influenza. They show the need for continual observance of muscle imbalance and the need for awareness of changes in corrective splints or supports. They show what can be done to make it easier for the patient to live with her disability, and in this regard occupational therapy has unlimited scope.

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Season's greetings from the Staff of the American Journal of Occupational Therapy.

CASE HISTORY

CONGENITAL BILATERAL ARM AMPUTATION

A Detailed Report of the Experimental Fitting and Prosthetic Training of a Six-Year-Old-Girl

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INTRODUCTION

Congenital amputations of the type discussed herein are, fortunately, rare. The rarity, however, complicates the problem of securing reasonable and practical achievement in the rehabilitation of such cases. This article details a team approach involving a specific case available for fitting and training for a total period of eight weeks. A motion picture showing the results of these efforts has been produced and is available.

FAMILY HISTORY

The patient, a six-year-old-girl, was born in Honolulu, T. H., on May 5, 1948, of Chinese parents. She is the fourth of five children; three other girls aged eleven and nine years and seven months and one boy, aged eight years. The patient was born with bilateral shoulder disarticulation amputations (Fig. 1).

MEDICAL HISTORY

Since birth, the patient's medical care has been jointly assumed by the Public Health Department and the Crippled Childrens' Association in Hawaii. Both organizations have participated in handling the complex financial needs of the family to provide a rehabilitation program for the child.

On May 4, 1952, Dr. Henry H. Kessler, M.D., of the Kessler Institute for Rehabilitation, Newark, N. J., surgically provided a left pectoral cineplastic motor and three weeks later the right pectoral cineplasty.

Following an uneventful recovery, tunnel exercises were initiated and two months later cineplastically operated artificial arms were fitted.

Each of the prosthetic arms were independently fitted and used since bilateral fitting was not considered feasible at that time. The artificial arms were used alternately, the right one day and the left the next, and never simultaneously. The terminal devices were voluntary closing hooks activated through a series of mechanical levers.

Fig. 1. Appearance of patient on admission. The abdomen scars are donor sites for the pectoral skin grafts.

Arm training was provided for a period of approximately nine months at the Kessler Institute and included such activities as picking up variously shaped wooden blocks, "building" houses with plastic blocks and painting ceramics with a small brush.

On return to Hawaii, the child attended a private kindergarten class of thirty pupils during the school year. Her particular interest was drawing, in which she grasped the pencils with her hook or her feet.

In late June, the child was admitted to the Navy Amputation Center on an out-patient status for purposes of fitting experimental artificial arms and to provide intensive training in their use. Prior plans had been made for entrance of the child into the first grade of public school in Honolulu in early September so that time was limited. The mother of the child was in attendance for the early sessions but returned home because of sickness of another child.

INITIAL EVALUATION

The patient was very alert; grasped instructions readily, was obedient and a very affectionate, loving child. Without prostheses she possessed marked prehensile abilities with her feet and toes, using them readily and deftly.

The physical examination was essentially normal. The child was 44 inches in height and weighed 35 pounds.

Both cineplasties and the skin graft scars on the abdomen were well healed and in excellent condition except for a tender area at the lateral invagination of the left tunnel with evidence of slight trauma and irritation.

Maximum excursion and maximum exertion of force for each cineplastic motor was found to be as follows:

	Maximum Excursion (inches)	Maximum Force (pounds)
Left tunnel	½	6
Right tunnel	5/8	10

The patient demonstrated a marked and unique ability to substitute her toes and feet for the missing limbs, accomplishing such feats as feeding herself at table with a spoon or fork, drinking from a cup, brushing her teeth, drawing, copying the alphabet and using small blunt scissors to cut out paper dolls. It was also noted that she had a pronounced tendency to use her feet to the exclusion of the prostheses unless positively encouraged by the therapist. Rather than chance the establishment of a sense of discouragement in the use of prosthetic devices it was decided to meet the problem with some subtlety.

PRE-PROSTHETIC EXERCISES AND CONSTRUCTION OF CINEPLASTIC PINS

Measurements were taken for manufacture of the artificial arms but the cineplasty pins were made and fitted immediately.

Stainless steel pins were made for each tunnel. Slightly undersize in diameter, they were covered with flexible polyvinyl chloride acetate providing a snug, but not tight, fit. In a few days the pins were routinely inserted in the morning and remained in place continuously until bedtime.

Systematic tunnel exercises were instituted and given by the therapist three times per day, in the morning, afternoon and early evening. The exercises, given in the supine position, were provided primarily to increase tunnel excursion and secondarily to strengthen the musculature concerned. Regular shoulder exercises were also provided.

Following each exercise period both tunnels were gently cleaned with a swab and hydrogen peroxide. Special care was taken to dry the interior of the tunnels following each application.

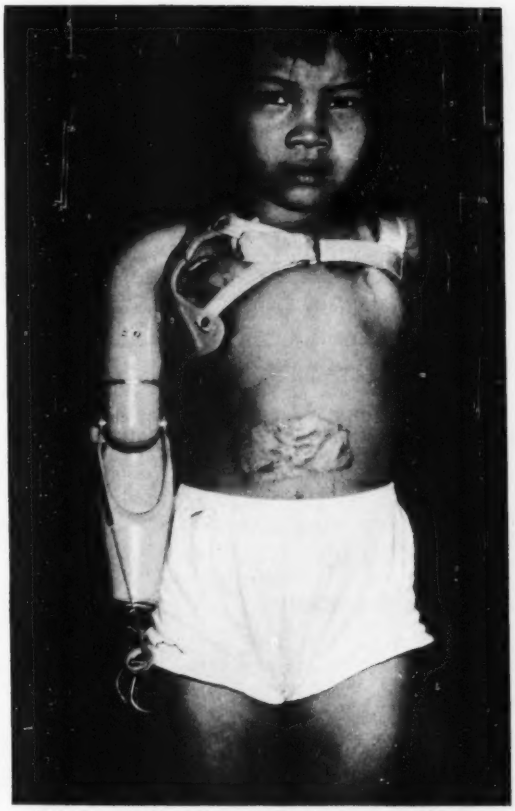


Fig. 2. At this center, the patient was initially fitted with a prosthesis featuring a lock-type elbow. Activation of alternating-type lock in elbow required minimum of one-half an inch excursion which patient could provide only with extreme effort. Note terminal device of voluntary-opening type, opposite to operation of prior prostheses. Elbow flexion was accomplished with shoulder shrug by use of special harness about opposite shoulder. This action was also used in a single harness method to operate the hook.

INITIAL FITTING AND PROSTHESIS TRAINING

Commercially available arm components featuring lock-type elbows were procured and initially the right side was fitted (Fig. 2). A specially arranged harness was used for retention. The forearm was flexed and the terminal device activated by anterior rotation of the opposite shoulder. A voluntary opening hook, opposite to previous devices, was employed. The elbow lock was the alternating type and was operated by the cineplastic pin on the same side.

A minimum excursion of one-half inch was required to activate the elbow lock, very near the maximum excursion of the right cineplasty. As a means of promoting excursion, the pin and its attached cable were adjusted to provide a slight stretching force even when the tunnel was at rest.

Studies revealed that elbow flexion plus operation of the terminal device required considerably more effort and energy than this child could be expected to regularly expend. The combination of excessive effort and a somewhat unpredictable function of the elbow lock joined to contraindicate use of the lock-elbow device; especially since the locked elbow in many activities, such as eating, resulted in more disadvantages than advantages.

For these reasons the elbow-lock devices were replaced with special miniature Navy-Fitch arms utilizing the cineplasties to operate the terminal devices. Leg loops were employed to provide elbow flexion and special shoulder hinges were used to permit shoulder abduction and adduction.

PART I

REPORT COVERS PERIOD FROM

JULY 12 THROUGH JULY 23, 1954

The following is a two-week resume of the specific activities of the patient in using the lock-elbow type prosthesis (Fig. 2). Bilateral fitting with the lock-elbow prosthesis was not attempted.

July 12, 1954 Lock-elbow prosthesis — right side only — Baby Utility Dorrance hook.

9:00- 9:30 Picking up and replacing dowel checkers, played as game to acquaint child with personnel and surroundings.

9:30-10:15 Coloring animal pictures with pencils to acquaint child with voluntary opening hook, position of material and general use of prosthesis.

10:15-11:15 Practice in locking-unlocking elbow, tunnel flexion exercises.

11:15-12:00 Prosthesis to laboratory for adjustments of cable.

12:00- 1:00 Lunch with therapist.

1:00- 2:00 Practice in locking-unlocking elbow, tunnel flexion exercises.

2:00 Dismissed for day.

IMPRESSION: Patient grasps instructions very quickly. Cable to elbow lock sticks frequently and tunnel pin must be brought to full relaxation point manually. Child expresses pleasure at having her "new hand." Maximum hook opening with elbow at ninety degree flexion, one-half inch. With elbow fully extended, one inch.

July 13, 1954 Lock-elbow prosthesis—right side only.

9:00-10:00 Practice in lock-unlocking elbow. Cable still "sticks," possibly due to incomplete relaxation of the cineplastic motor.

10:00-10:30 Using hook, coloring with pencils.

10:30-11:00 Practice in locking-unlocking elbow. Tunnel and shoulder exercises.

11:00-12:00 Prosthesis to laboratory for study of elbow lock dysfunction.

12:00- 1:00 Lunch with therapist.

1:00- 2:30 Rest period for patient. Therapist returned limb to shop because elbow lock did not return voluntarily to position either on or off patient. Prosthesis completely dismantled, checked and cleaned for possible stray metal particles.

2:30- 3:45 Practice in locking-unlocking elbow. Lock seems to work better since being cleaned. Use of spoon in eating started.

IMPRESSION: Child continues to learn readily and when elbow lock does not work readily she speaks to the tunnel pin thus, "you naughty old pin, get back there!" Seems to understand fully the operation of the elbow lock and opening of the hook.

July 14, 1954 Lock-elbow prosthesis—right side only.

9:00-9:20 Prosthesis to laboratory for adjustment and replacement of pin lost from shoulder hinge.

9:20-9:40 Practice in locking-unlocking elbow lock.

9:40-10:00 Coloring with colored pencils.

10:00-10:30 Practice with elbow lock. Use of spoon and cup.

10:30-11:00 Rest period — neither arms nor cineplastic pins removed.

11:00-11:50 Practice with spoon and cup.

11:50-1:00 Lunch with therapist.

1:00-2:30 To laboratory for preliminary fitting with Navy-Fitch arm on left side.

2:30-3:45 Positioning and picking up various shaped dowel blocks as game.

IMPRESSION: Definite improvement in operation of elbow lock. Successful about 80 per cent of time in operating elbow lock with arm extended and with patient standing. About 60 per cent of time in sitting position with elbow flexed. Still unable to open hook to full opening. With arm flexed, opening is now five-eighths of an inch. Right cineplastic motor is getting stronger. Now picks up pencil from table, places tip in a three-fourths inch drilled angle hole and then proceeds to grasp pencil in hook for writing position.

July 15, 1954 Lock-elbow prosthesis—right side only.

8:30-9:20 To laboratory for additional fitting with Navy-Fitch arm.

9:20-10:10 Practice in operating elbow lock. Malfunction persists about 40 per cent of time when patient in sitting position.

10:10-10:40 Coloring and drawing with colored pencils—patient's sense of color well developed.

10:40-11:00 Practice in operating elbow lock and in opening hook.

11:00-11:50 Patient uses rubber tip of pencil to type name on typewriter grasping pencil in hook and with elbow locked. Patient in standing position.

11:50-12:30 Lunch with therapist.

12:30-2:00 Sleep and rest period.

2:00-2:40 Tunnel exercises, practicing operating elbow lock and hook.

2:40-3:15 Drawing and typing. Has memorized method of typing her complete name and delights in this repetition.

IMPRESSION: Continues to improve. Instruction in use of the turn-table of the prosthesis beginning to be effective and patient uses it more and more. Some difficulty in positioning (rotating) the hook, thus she uses her foot to rotate it, especially in the absence of another person.

July 16, 1954 Navy-Fitch cineplastic arm, left side only—Baby Utility Dorrance hook.

8:45-9:30 To laboratory to receive Navy-Fitch limb for left side.

9:30-10:30 Practice in fundamentals of operation of Navy-Fitch cineplastic arm.

10:30-11:00 Drawing and coloring with colored pencils using Navy-Fitch arm.

11:00-11:30 To laboratory to change cable point anchor because insufficient clearance exists when using cineplastic motor to operate hook.

11:30-12:00 Additional practice and testing in operation of arm.

12:00-12:45 Lunch with therapist.

12:45-2:00 Sleep and rest period.

2:00-3:00 Practice in opening and closing hook in

the various positions of flexion and extension with the Navy-Fitch cineplastic prosthesis.

3:00-4:00 Additional practice. Also using typewriter with new limb. Patient now able to extend elbow without opening hook when pushing downward with pencil. Hook is loaded with single rubber band.

IMPRESSION: Excursion of tunnel at present permits only three-fourths inch opening of hook. The left cineplastic motor also pulls inward toward chest rather than downward, somewhat complicating the operation. Hook cable adjustment is such that cineplastic motor is continuously under slight tension. Time, practice and concentrated tunnel exercises should create considerable improvement. The patient wore the arm home with her tonight.

July 17, 1954 Lock-elbow prosthesis—right side only.

9:20-9:40 Practice in locking-unlocking elbow — operation of hook.

9:40-10:00 Group of twenty-five doctors through occupational therapy department. Patient introduced to group.

10:00-10:20 Short rest period — eating cookie with hook.

10:20-11:20 Practice in brushing teeth, using spoon, drinking from cup, washing hook. Off for weekend, taking Navy-Fitch arm with her.

IMPRESSION: After one week with the lock-elbow type arm, this patient knows the mechanical and operational characteristics well, but due to the narrow width of her shoulders it is sometimes quite difficult to obtain the desired opening of the hook. At this time full opening of the hook with the lock elbow is obtainable only when the arm is by the side. Locking of the elbow continues to be successful about 80 per cent of the time standing and less when sitting. In the afternoons the percentage is less. Even though child tries to relax motor, it is sometimes necessary to manually place the motor back in its relaxed position. In the absence of help to achieve this, the child overcomes this situation by jumping up and down and taking advantage of the inertia of the prosthesis. The progress has been good considering the fact that the patient is a six-year-old child whose muscular development is still not complete. Her attention span is excellent and the desire to use the "hand" is indeed great.

July 19, 1954 Navy-Fitch cineplastic arm—left side.

8:10-9:00 Practice with arm amputee instructor in flexing and extending elbow and operating hook.

9:00-9:30 Drawing with colored pencils using Navy-Fitch arm.

9:30-10:00 Practice with dowel blocks using Navy-Fitch arm.

10:00-10:20 Rest period.

10:20-10:40 Consultation with doctor and limb fitter about harnessing of Navy-Fitch arm. Difficulty in opening hook, especially when elbow is flexed at 90 degrees, because tunnel pin is obstructed by prosthesis tending to pull tunnel outward from body. Alteration made.

10:40-11:00 Rest period.

11:00-12:00 Coloring with pencils; typing, using rubber tip of pencil.

12:00-1:00 Lunch with therapist.

1:00-2:00 Rest period.

2:00-3:15 Practice drinking water from cup, eating with spoon, and brushing teeth. Took Navy-Fitch arm home.

July 20, 1954 Navy-Fitch cineplastic arm—left side.

9:00-9:50 Practice with Navy-Fitch arm.

9:50-10:20 Navy-Fitch arm removed. Cineplastic pins removed and tunnels cleaned. Very small rough spot on plastic covering of left cineplastic pin. Small blister on lateral opening of left tunnel due to roughened area. Pin to laboratory for repair; off left tunnel for twenty-four hours.

10:20-11:00 Lock-elbow prosthesis on right side — drawing with pencils.

11:00-11:45 Practice eating with spoon — using raisins in bowl.

11:45-2:30 Lunch followed by rest period.

2:30-3:15 Eating with spoon, brushing teeth, drinking from cup.

3:15-3:40 Working devices on practice board, dialing telephone, operating switches, faucet handles, etc. Took lock-elbow limb home.

July 21, 1954 Lock-elbow prosthesis—right side only.

9:00-9:40 To medical officer to check condition of tunnels. Small reddened area inside left tunnel. Slight tenderness. Medication applied by physician and orders to leave off prosthesis an additional twenty-four hours.

9:40-10:45 Additional practice in locking and unlocking lock-elbow prosthesis. Due to small excursion of shoulders, patient is still unable to open hook more than 1-½ inches at elbow height and one-half inch at level of mouth.

10:45-11:00 Rest period.

11:00-11:45 Drawing with colored pencils. Delights in drawing and ability is improving. Seems to use left hook as well as right in this activity.

11:45-2:30 Lunch with therapist and rest period.

2:30-3:30 Practice with spoon, cup and tooth brush. Tunnels cleaned. Took lock-elbow prosthesis home.

July 22, 1954 Lock-elbow prosthesis — right side only.

9:30-10:00 Drawing with pencils.

10:00-11:00 Practice with spoon, drinking water from soup bowl, drinking water from cup. Visiting former therapist from Kessler Institute.

11:00-11:50 Drawing with pencils.

11:50-2:30 Lunch with therapist and rest period.

2:30-3:30 Practice with spoon, cup, toothbrush, achievement board. Left tunnel inactive entire day.

July 23, 1954 Lock-elbow prosthesis—right side only.

9:00-10:00 Practice with dowel blocks. Practice with picking up blocks of increasing widths. Blowing soap bubbles and breaking them with hook.

10:00-11:00 Drawing with pencils.

11:00-11:40 Practice with spoon, drinking from cup.

11:40-12:00 Patient expressed desire to make red leather purse for use when school started. Assisted therapist in cutting out pattern in leather.

12:00-2:00 Lunch with therapist and rest period.

2:00-3:45 Began lacing red purse. Demonstrates great perseverance and patience in using lacing needle. Hook loaded with two rubber bands in order to firmly hold lacing needle.

3:45-4:00 Patient complained of right tunnel being tender. Examined by medical officer. Right tunnel slightly irritated probably due to concentrated work during afternoon. Advised to give tunnel twenty-four hours rest. Left tunnel all right.

SUMMARY

In comparing the use of the two types of arms, the lock-elbow type and the Navy-Fitch prosthesis, the following factors have been noted. The lock-elbow prosthesis which has been fitted on the right side and using the Dorrance Baby Utili-

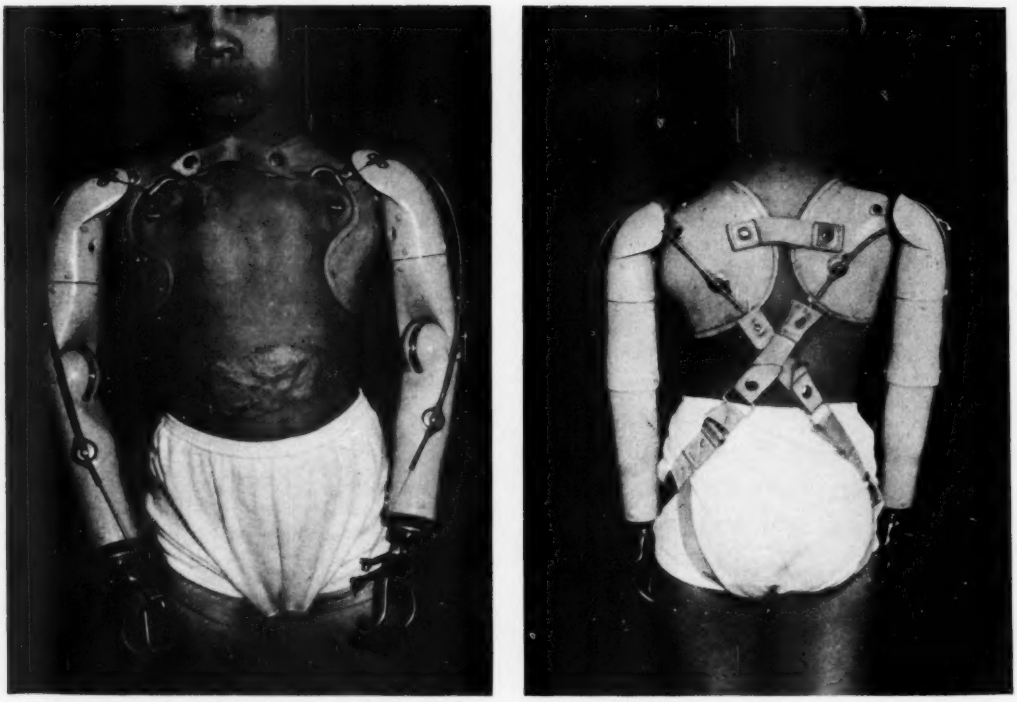


Fig. 3. First fitting of Navy-developed bilateral arms.

Shoulder hinges here are single-axis type which were later experimentally changed to double-axis type in an attempt to permit additional movement at the shoulder. Single-axis hinges were replaced after study because of least interference in operating characteristics of prostheses.

Hooks are Baby Utility Dorrance No. 10 which are voluntary-opening type and are directly connected to cineplasty motor.

Elbow flexion is accomplished through action of individual leg loops which provide considerably more force in elbow flexion than is ordinarily required. Leg loops are crossed in back and are worn inside pantie so that they are not disturbed at toilet.

ty hook permits an opening of the hook of 2-½ inches when the elbow is fully extended, approximately 1-½ inches when the elbow is flexed 90 degrees, and one-half inch at level of the mouth. By use of the elbow lock the patient is able to use arm fairly well within these hook openings. Patient is able to use turntable at will by pushing the forearm against a chair or table to position it inward or outward. Position of the hook is changed by use of her feet, if a second person is not near, but prefers to position the hook herself. Patient able to use elbow lock approximately 70 per cent of the time; extraordinary effort to operate prosthesis is required as well as considerable time for accomplishment. At lunch the child eats her sandwich through use of the elbow lock after the sandwich has been placed in the hook. She ordinarily needs help in getting the last bite from between the hook fingers. She has also eaten apples and cookies in this way.

In comparison, the Navy-Fitch forearm may be brought up to many positions but due to the non-linear action of the left cineplastic motor, opening of the hook is limited because the excursion of the left motor is only about one-half inch and one-half the force of the right motor.

Patient uses Navy-Fitch arm more naturally and with less effort, and she can accomplish a given task faster and more efficiently than with the lock-type elbow prosthesis.

At this time the child is able to exert a pulling force of six pounds with the left tunnel and ten pounds with the right tunnel. She was able to insert the cineplastic pin using her feet and chin; however, a great deal of effort was required. To be able to readily perform this function in the future will require much practice.

PART II

REPORT COVERS FINAL PERIOD FROM JULY 24 THROUGH SEPTEMBER 3, 1954

Week of July 26 through July 30, 1954

Activity was carried on in much the same manner as in Part I. On July 26, the patient was examined by the medical officer and performance with both types of arms evaluated. It was decided to replace the lock-elbow arm with a Navy-Fitch prosthesis. This decision was made because

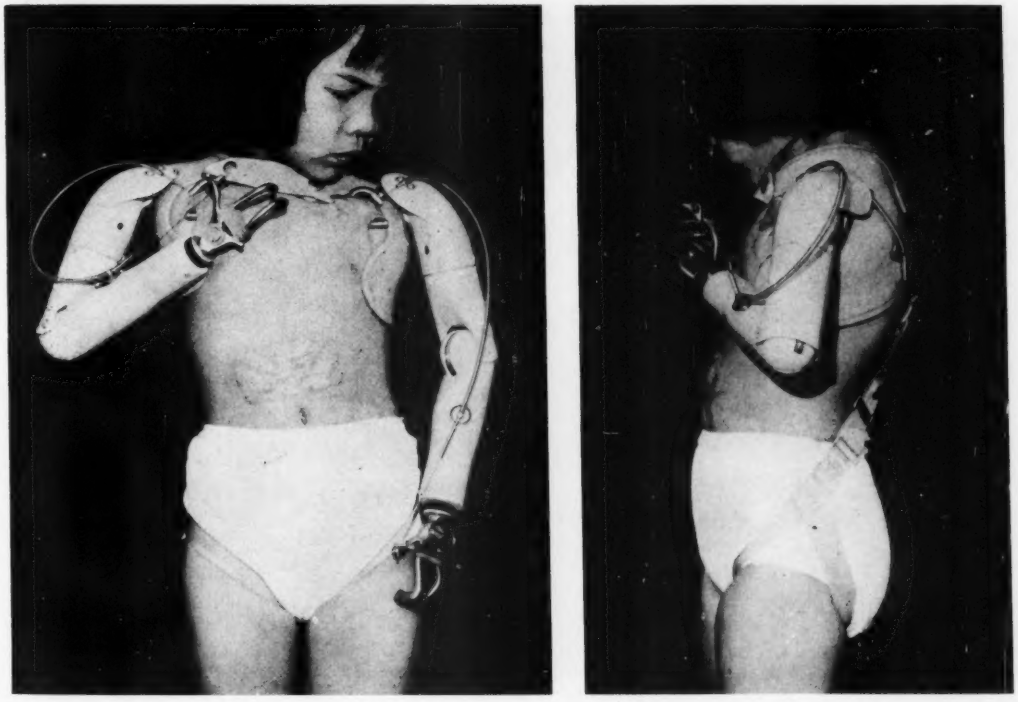


Fig. 4. Elbow flexion is accomplished through leg loops. Tension on the right loop produces any desired degree of elbow flexion of the left prosthesis and vice versa. Through training, the elbows may be flexed individually or simultaneously.

Each arm is equipped with a manually operated turntable located above the elbow. The turntable permits a transverse rotation of the elbow and forearm as a unit, allowing operation of the terminal device to be operated in various vertical planes near the body. Operation of the turntables is performed by the patient who uses a chair or table to move the hook inward or outward to a position of choice or advantage.

the excursion of the right cineplastic motor was not great enough to control the elbow lock with ease. Frequently more effort and energy was required than was actually necessary to lock or unlock the elbow. On July 29, the mother left for Honolulu, the child remaining with the therapist in her home the remaining five and one-half weeks. The lock-elbow prosthesis was replaced with the Navy-Fitch on July 28.

Week of August 2 *through August* 8, 1954

Training continued as fittings for bilateral Navy-Fitch prostheses were started. The patient continued the same daily routine and alternate use of the right and left Navy-Fitch arm. Due to the limited excursion of the tunnels, the maximum opening of the hooks remained small, the largest opening being approximately 1-½ inches. Maximum opening could be obtained if the cable was shortened enough to stretch the tunnel muscles. When this was done, even with frequent rest periods, tenderness and irritation of the tunnels often resulted. For this reason caution was used in stretching the muscle tunnels as described. The patient continued daily activities, writing, painting, eating, picking up wood blocks and lacing the "red purse." Attempts were made to use the hook in pulling the "pantie" down for use of the toilet as were attempts at wiping with toilet paper.

Week of August 9 *through August* 15, 1954

On August 9, the patient was fitted with bilateral Navy-Fitch prostheses, the first time she had been bilaterally fitted. These limbs were modified so that leg loops were used to flex the elbows (Fig. 3). Each of the arms was attached to its respective shoulder socket with a single axis hinge joint permitting abduction of the arm at the shoulder. Initial use of the arms with the leg loop elbow controls was very good (Fig. 4). In addition, training was attempted to enable the patient to position (rotate) the hook by the opposite prosthesis. Use of the turntable was easily mastered.

Weeks of August 16 *through August* 29, 1954

Training with the bilateral Navy-Fitch arm continued in a routine similar to that in Part 1.

Force to create 70 degrees forearm flexion was found to be seven pounds for the right and six pounds for the left. Activities included mastering the control of the flexion of the elbows, in extending them together and then, alternately, picking up wooden blocks in the right and then in

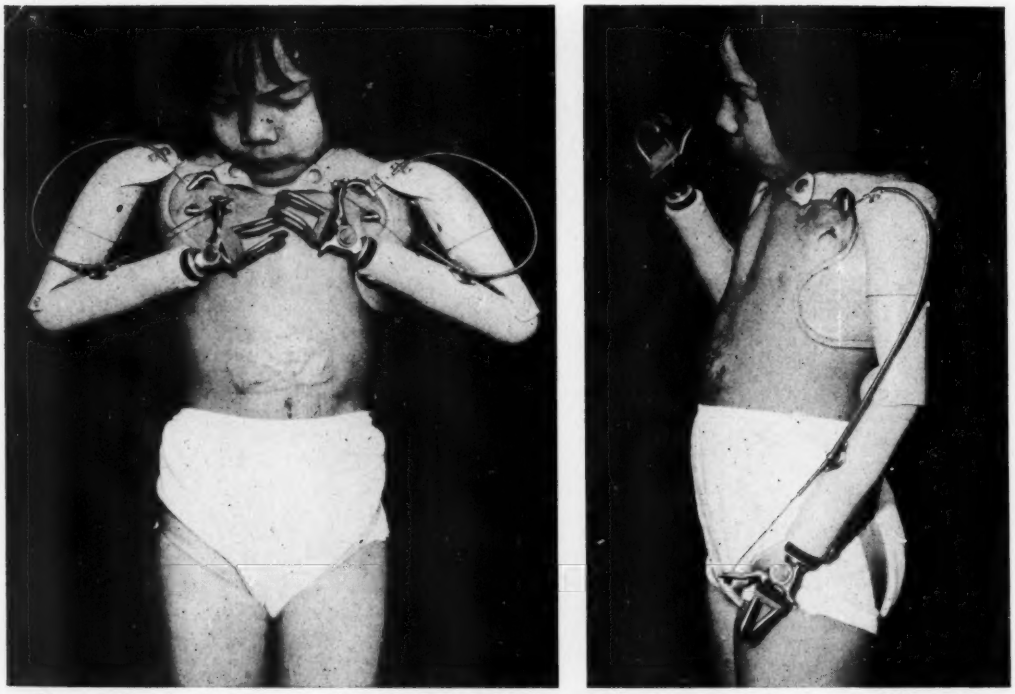


Fig. 5. The cineplastically controlled hooks are at all times under the neuromuscular control of the patient and may be operated in any position in which they may be placed by the patient and are operative independently or together.

Removal of the arms is accomplished by detaching the hook control cables from the cineplasty pins, unsnapping the strap connecting the shoulder cups, and removing the pins from their tunnels.

Substantial improvement has been made in the strength and excursion of the cineplastic motors. Further improvement is expected with time and regular exercise.

The cineplasty tunnels must be kept scrupulously clean and dry through routine swabbing followed by thorough drying.

the left hooks. The blocks during the latter stages of training were progressively increased in width until seven-eighths of an inch squares could be handled with facility. Intensive work was carried on also in training in use of the hooks together. This included such activities as picking up a pencil from the table with the left hook so that when grasped by the right hook the pencil would be in the proper position for writing. Eating, writing and painting were other activities which included alternating use of the two hooks. A looper pot holder and the red purse were completed during this period.

Week of August 30 *through September* 3, 1954

Activity for the first three days of this week was especially intensive and covered practically all prior activities. The final two days were spent in finishing the prostheses and taking pictures, both motion and still.

SUMMARY

During the eight weeks available for treatment of this patient, cineplastic excursions and forces she could exert and resist (Fig. 5) were recorded as follows:

	LEFT CINEPLASTY			RIGHT CINEPLASTY		
DATE	Max. Force (pounds)	Max. Resist.	Excurs. (Inches)	Max. Force (pounds)	Max. Resist.	Excurs. (Inches.)
20 July	6	—	½	10	—	5/8
10 August	10	13	7/8	10	12	1
31 August	13	14	1-¼	14	15	1-½

Each prosthesis weighed 1-¼ pounds and the patient considered them to be quite comfortable. At time of discharge the patient used single, full width rubber bands on both hooks. Hook openings were limited to approximately 1-½ inches. Shortening the control cables increasing tension on the cineplastic motors results in wider openings of the terminal device but may also cause trauma and irritation of the skin tunnel after several hours use.

Eating with the hooks became progressively easier except that undue exertion was sometimes required after the hook was at mouth level in getting food into the mouth due to the fact that the turn-table had to be turned inward toward the body at a point approximately 3 inches from the abdomen. The hook must not only pick up the food as the shoulders rotate anteriorly but the spoon must continue to remain level on its

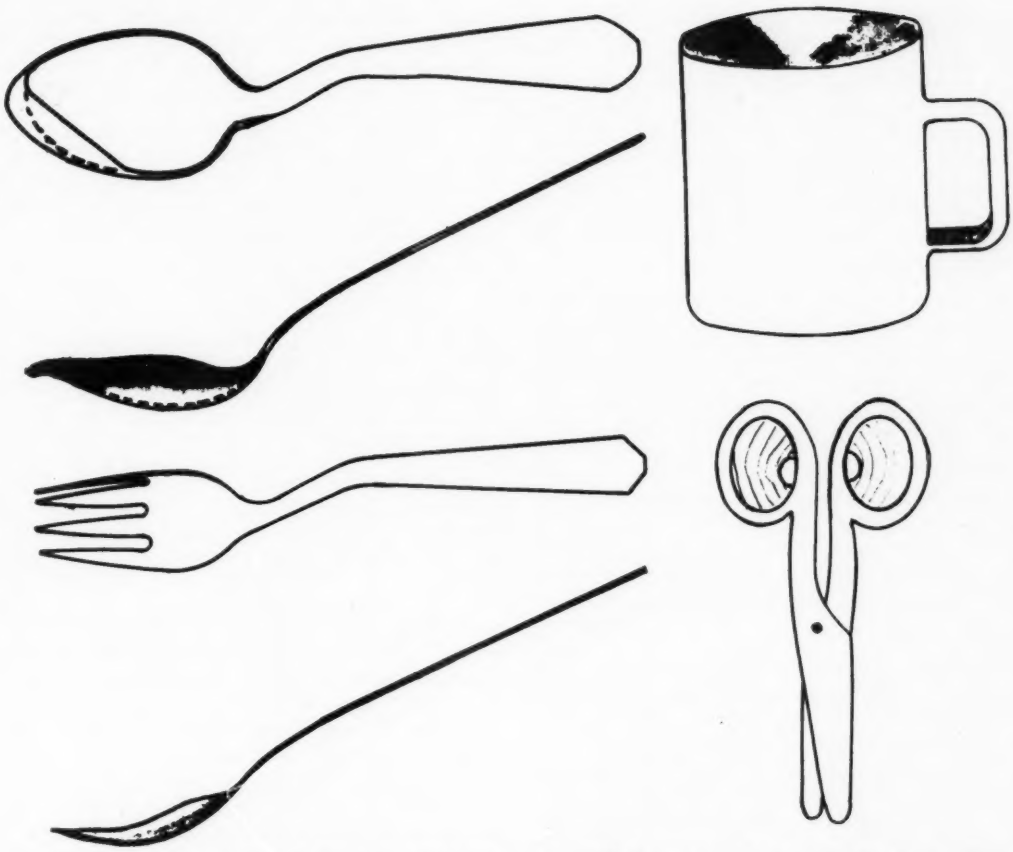


Fig. 6. A spoon and a fork have been simply and easily modified, as shown in sketch, which have proven to be of considerable advantage in eating. The beveled lip of the spoon permits advantages in picking up food from the slick surface of a plate and the offset incorporated in the handle after considerable testing of the most desirable angle. The modified fork tends to prevent dripping of food while in passage to mouth level.

The cup is of a type available at most dime stores. It is smaller than the usual cup and has vertical sides. At the attach points of the handle the lower portion is slightly flattened and is near the bottom of the cup which permits relatively easy grasping in the hook. The cup is made of plastic and is quite inexpensive.

Wooden plugs have been fitted in the finger holes of the scissors so that the two fingers of the hook may be inserted for cineplastic operation of the scissors.

upward path toward the mouth. After experimenting with various angles, one toward the center of the body which could compensate for absence of lateral motion was used. The end of the spoon handle was thus anchored under the thumb hook (in the conventional manner) and between the hook fingers. The inner lip of the spoon was flattened so that small particles of food could be picked up more easily (Fig. 6).

The advantages of the flattened lip of the spoon can be especially appreciated since this patient had no way of tipping the bowl of the spoon. A small fork (a small salad fork) was angled exactly as the spoon (Fig. 6) with the outer portion twisted to an upright position and was used in eating fruit, cut melon and soft boiled eggs.

Sandwiches, candy, apples and other foods ordinarily eaten with the fingers presented no unusual problems. Any food small enough to come within the patient's ability to open her hooks could be readily picked up and transferred to the mouth. Food too large to be grasped in the 1-½ inch opening, when placed in the hook by the therapist, could be eaten with ease.

For drinking fluids, a child's plastic cup with a flat, low handle and of 125 cc capacity was used (Fig. 6). The hook was used to position the handle of the cup toward the right side, then the hook was opened to pick up the cup and grasping the lower part of the handle between the hook fingers.

The patient's writing is legible but at times unsteady. At present the pencil is grasped by picking it up, then dropping the sharpened point into an angle hole drilled at approximately 30° from the vertical in a metal block. The pencil is then in an upright position and free to be

grasped in the hook in proper position for writing.

An attempt was made to have the patient use scissors. The finger holes of the scissors were plugged with balsa wood (Fig. 6) leaving small holes on the inner rims large enough to accept the fingers of the hook. Time did not permit extensive practice but did demonstrate that scissors could be used in hooks operated by cineplastic motors.

Projects completed include one leather laced purse, one looper pot-holder and small cutting board which was steel-wooled, sanded and painted with water colors in fruit bowl design, then shellacked. There were also numerous drawings, water colors and alphabets.

The patient displayed much pleasure in simple activities when movement of the entire body was employed. One activity involved holding a 12-inch ruler by either end in her hooks, swinging the ruler from side to side (flexing the elbows), and singing in cadence, pretending to lead a choir.

Discussions with the patient concerning going to school revealed that she had no worries about such things as walking to school, carrying books, writing or studying. She was concerned as to whether or not she could successfully compete with the other children in physical activities. This was clearly evidenced by her statement, "I'm worried about whether I can play 'London Bridge is Falling Down' because you know you should put your hands high above your head, and I can't."

Asked what she thought about her bilateral cineplastic arms she said, "I think they are good. I can eat with them."

A total of nine days was the only time available for practice and use with the Navy-Fitch bilateral cineplastic arms following the experimental fittings. The patient's progress is considered outstanding under these time limitations and the maximum arm disability present.

RECOMMENDATIONS AND OPINIONS

1. It is recommended that the patient continue use of and training with the bilateral prostheses in accordance with and along similar lines as those contained in this report. In particular, guidance should be given by parents, teachers and therapists in activities with the use of the artificial arms in the practical requirements of daily living, school and play.

2. It is the opinion of the medical officer that the patient should be enrolled in the regular public school at the first grade level. A special school or ungraded classroom is not recommended. Special instruction and help should be provided, if necessary, to help this child maintain a scholastic level with her classmates.

3. The cable from the cineplastic motor to the terminal device should be progressively shortened by one-sixteenth of an inch at monthly intervals in order to gradually increase the tunnel's excursion. Likewise, a one-fourth width of rubber band should be added to the hooks in order to gradually increase the muscle force of the tunnels. Strict daily care and observation of the tunnel skin must be made to minimize and prevent skin irritations. Should irritation occur, the tunnel peg should be removed for a few days but the prostheses should be utilized without hook control on the affected side.

4. Patient should be encouraged to use her prostheses instead of her feet. She should not be forbidden to use her feet because dependency on a material device is not absolute.

5. The prostheses provided this patient are considered provisional and training-type artificial arms. The simplest, minimal and most natural functions were utilized in the prostheses in order to promote and allow the cineplastic tunnels to grow and increase in excursion and strength. The main features of the arms are bilateral use, simple elbow flexion, arm rotation and voluntary opening hooks. It is recommended that during the summer of 1955 further experimental fitting and training be provided with artificial arms incorporating some additional functions such as flexion and extension of the shoulder joint coupled with elbow flexion and extension, wrist pronation and supination, and wrist flexion and extension. It is the opinion of the medical officer that some of these additional functions are necesary for this type of case to utilize prostheses and thereby achieve maximum replacement for human arms.

In Memoriam

Miss Elizabeth Hutcherson
Cincinnati, Ohio
Deceased March 22, 1955

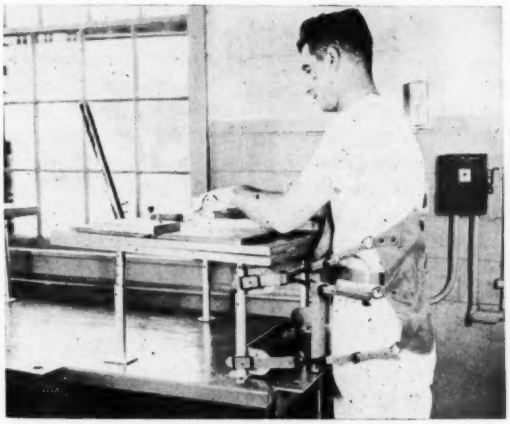
Miss Martha Hall
Baltimore, Maryland
Deceased May, 1955

Mrs. Dorothea Cooke Lythgoe
West Newton, Massachusetts
Deceased May 12, 1955

Henry Poncher, M.D.
Valparaiso, Indiana
Deceased June, 1955

Picture Page

This page is a new feature and contributions are welcome. The pictures used for this issue are submitted by Lt. Col. Myra McDaniel, WMSC, Surgeon General's Office, Wash., D.C.



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A patient with gross leg and trunk weakness, wearing leg braces, may be safely supported by this apparatus. A wooden panel is slipped into place for anterior support, while heavy leather padding and strong straps are adjusted firmly around the back. The table is adjustable in height.

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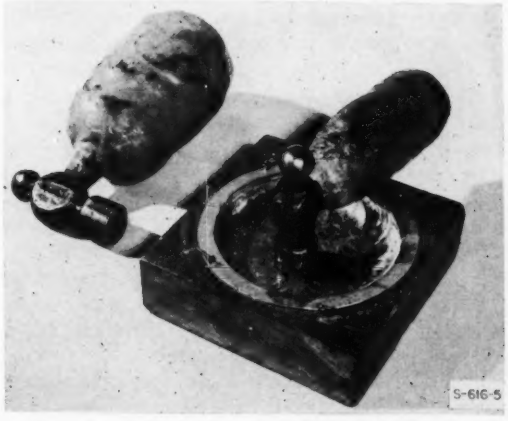
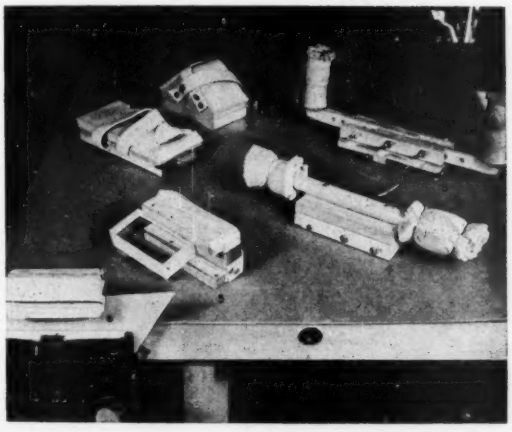
Ball peen hammers with shortened handles built up with dental wax. Provides gross grasp when working for wrist motion particularly when forearm is stabilized on block or platform.





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Sand blocks No. 1 and No. 2 show use of sponge rubber padding and elastic straps which are adjustable by eyelets and enable patient to attach them himself. These blocks also show the method of attaching sandpaper into a slit at one end and held by a tight wedge at the opposite end. Sand blocks No. 5 and No. 6 are grooved to fit the thickness of the plastic being sanded; this is useful in "channeling" movement of an incoordinate patient. Sand block No. 3 is for bilateral use and may be adjusted to increase elbow extension to a maximum. Sandpaper is attached with metal bands which pivot securely into place. Sand block No. 4 is a bilateral sand block with sponge rubber padding.

NATIONALLY SPEAKING

NEW OFFICERS

New officers of the American Occupational Therapy Association elected for the coming year are:

1st. Vice-President....Beatrice D. Wade, O.T.R.
Treasurer-Elect.....Wilma West, O.T.R.

Board of Management members:

Sister Jeanne Marie, O.T.R.
Ivabelle Rhodes, O.T.R.
June Sokolov, O.T.R.

Major Ruth Robinson, WMSC (OT), who was president-elect during the past year, took office as president at the last meeting of the Board of Management held during the 1955 conference in San Francisco in October.

From the President

Last June I had the good fortune to be one of the sixty occupational therapists who participated in the institute held in New York under the auspices of the Office of Vocational Rehabilitation to reassess professional education and practice in occupational therapy as they relate to rehabilitation. It was by far the most rewarding professional experience I have ever had and one which I wish could have been shared by each one of you.

This was not due to the keynote speakers, and they were outstanding; nor to the discussion method used, and it was effective; nor to the conclusions drawn, and they were a valid contribution of the better understanding of our growing responsibility in the field of rehabilitation. It was due to the working participants, the directors of our thirty professional schools and the twenty-nine other clinical training directors. The breadth of their vision, the scope of their knowledge, their unity of purpose and their analytical approach to the solution of our common problems was truly inspirational and promises us the healthy, vigorous future which can be assured if each one of us assumes fully the professional obligation which is ours.

This is a time of transition. The field of medicine has forged ahead with stunning rapidity even within the memory of the youngest occupational therapist. We, as members of a paramedical profession, have supported and are contributing to these advances. As members of the American Occupational Therapy Association, and as individuals, we have given and are continuing to give constructive thought, unstinting effort and much time to the delineation of our functions, the clarification of our goals, the development of our techniques and skills and to the modification and increased utilization of the components of the structure of our organization to the end that we may become constantly more effective occupational therapists.

We have not been alone in our effort; many groups, public and private, have contributed to this continuing process; the medical specialty groups through their representatives on our Medical Advisory Council, the Office of Vocational Rehabilitation, the National Foundation for Poliomyelitis, the United Cerebral Palsy Associations, Inc., the Grant and Kellogg Foundations, to name only a few.

We cannot rest on our laurels. We must persist in our work and persist creatively. The first formal group statement of our purpose drawn up so many years ago at Clifton Springs, New York, by the incorporators of our organization, was inspired. The development of their plan has been truly remarkable, particularly in view of the size of our group. This is a tribute to the clear thinking of our leaders and to the unification of our purpose: To better meet the needs of the patient as they fall within the province of occupational therapy. If we are to continue in our development each one of us must make a greater effort to share our knowledge, our ideas, our techniques and our skills. There is a wealth of material to share if we make it available.

How can this be done? By participation in the activities of our national and state organizations. If you truly participate you are bound to be articulate and express your opinions based on your knowledge and experience. The institute in New York was a perfect example of true participation and the benefit a group can derive when each individual assumes his share of the responsibility with interest and enthusiasm.

For too long a time now too few have been called on to contribute too much to our organization. This is understandable. Many of us are hesitant to participate in the true sense of the word because we hesitate to assume responsibility without the assurance that we are needed and that we have something worthwhile and acceptable to contribute to the group. I can assure you that each occupational therapist has much to contribute, that his contribution will be respected and appreciated by the group, that the group is only as strong as we make it and we make it strong only through active participation.

Our continued effective professional development rests with you. Don't fail us, don't fail yourself.

Ruth Robinson, Major, WMSC (OT)
President

Internationally Speaking

The growth of occupational therapy in other countries during the past year has been rapid. In August of 1955, there were 52 schools of occupational therapy in 14 countries. In one year, four courses have been started in four countries which did not previously offer training. This alone gives an indication of the rapid growth and development.

It is important that we keep abreast of developments in techniques and theory in other countries. How can we do this? One way is through the proceedings of the International Congress of the World Federation of Occupational Therapists held in Edinburgh, August, 1955. These proceedings have been published and are now available from the national office of the American Occupational Therapy Association for $1.00 a copy. The number available is limited so that prompt action is indicated for those wishing copies.

Plans are well underway for the second international congress to be held in Denmark in the summer of 1958. The proceedings of the 1958 meeting will be sent without additional charge to all individual and subscriber members of the World Federation of Occupational Therapists. It is regretted that there were not sufficient funds to do so for the first congress.

The Council of the World Federation of Occupational Therapists (made up of the delegate and two alternates of each member country) meets every two years. The 1956 council meeting will be held in Philadelphia, October 15-19, 1956, following the annual conference of the American Occupational Therapy Association in Minneapolis. It is hoped that many of the world council members will be able to attend the Minneapolis meeting and visit hospitals in this country.

The World Federation of Occupational Therapists is a member of the Conference of World Organizations Interested in the Handicapped. This Conference was formed in accordance with the request of the United Nations Economic and Social Council and is composed of non-governmental international organizations.*

To facilitate cooperation with the United Nations and the specialized agencies, the non-governmental organizations established in 1953 the Conference of World Organizations Interested in the Handicapped. The Conference met immediately before the fourth and fifth sessions of the "working group" held in 1953 and 1954. Organizations affiliated with the Conference represent a variety of interests, such as employers, trade unions, religious groups and professional organizations concerned with various aspects of social welfare and rehabilitation. The Conference constitutes an important means of extending the influence of international work to the community level in a growing number of countries. It has also made an important contribution by advising the technical working group, during the early stages, on various problems as they exist in the different fields in which the non-governmental organizations are interested.

Types of services available under the international program.

The coordinated international rehabilitation program is of very recent origin. Although many projects—primarily in the form of short-term advisers and fellowships—were carried out under the program of Advisory Social Welfare Services since 1947, it was not until 1952 that these activities assumed greater proportions.

The purposes of this conference are: "To assist the United Nations and the specialized agencies in their rehabilitation program; to provide liaison between the non-governmental organizations and the United Nations and specialized agencies; to develop cooperation among the non-governmental organizations; to hold regular meetings."

The meetings of this conference are held at the United Nations building in New York. Every two years a two-day conference is held. The last was in September, 1954, in Geneva. The next will be in the spring of 1956 in New York. Miss Fish and Miss Spackman are the representatives of the World Federation of Occupational Therapists.

The United Nations in the field of rehabilitation thus far show that occupational therapy is playing an important role. Occupational therapists have been among participants in international programs in the following countries aided by the UN, UNICEF and WHO: Yugoslavia, Korea and India.

One of the most frequent questions asked regarding occupational therapy in other countries is: "How can I get a job in another country?"

*Member agencies are: All India Women's Conference, American Foundation for Overseas Blind, Inc., Boy Scouts International Bureau, Catholic International Union for Social Services, International Association for Prevention of Blindness, International Catholic Child Bureau, International Committee of the Red Cross, International Confederation of Free Trade Unions, International Conference of Social Work, International Council of Nurses, International Hospital Federation, International Organization of Employers, International Poliomyelitis Conference, International Society for the Welfare of Cripples, International Union Against Tuberculosis, International Union for Child Welfare, League of Red Cross Societies, World Association of Girl Guides and Girl Scouts, World Confederation for Physical Therapy, World Council for the Welfare of the Blind, World Federation for Mental Health, World Federation of Occupational Therapists, World Federation of Trade Unions, World Veterans Federation.

The answer to this is complicated and it depends on a number of things: 1. What is your experience, are you qualified to organize and direct a department? If not, you should restrict your applications to countries that have well-established departments. 2. What languages can you speak? In order to obtain employment, you must be able to speak the language. 3. Can you apply in person for the position? Most institutions prefer to interview prospective employees. 4. Are you willing to accept the salary scale of the country in which you are seeking employment? Salaries in the United States are from two to three times higher than those in many countries. Those therapists interested in a Fulbright grant should address inquiries to Mr. Trusten Russell, Committee on International Exchange of Persons, 2101 Constitution Avenue, Washington 25, D. C.

(We have kept you posted through the Newsletter relative to O.T.R.'s who have been granted Fulbright scholarships in Italy and France particularly.)

The World Federation is trying to aid in exchange of personnel, but at present no simple method has been developed. Requests are received for experienced personnel to help establish centers in countries which at present have no facilities. If you are qualified and interested in such a position outside of the United States and speak another language, we would be interested in having your name.

For example, last year an occupational therapist was needed to give a course in physical disabilities and kinesiology in Sweden. There are many requests from therapists, trained and untrained, from other countries who wish to come to the United States for a year or more. Departments interested in employing a therapist from another country should contact either the placement service of the American Occupational Therapy Association or the World Federation of Occupational Therapists. Correspondence and consultation in the AOTA placement service relative to international practice and information have increased rapidly in the past few years.

Visitors to the national office this year have included doctors, occupational therapists and related professional personnel from Australia, Brazil, France, Germany, Israel, Peru and Portugal. We are proud to announce that the first two Panamanian students sent to the United States for training under the Point-4 program have just received their registration and returned to Central America to establish programs.

We cannot end this report without again paying tribute to Dr. Elizabeth Casson, who died on December 17, 1954. Dr. Casson was an honorary fellow of the World Federation of Occupational Therapists, vice-president of the English Association of Occupational Therapists, and founder and medical director of the Dorset House School of Occupational Therapy, England. In her lifetime Dr. Casson was a true and faithful friend of our profession and in her passing we have lost a wise counselor and honest critic.

Clare S. Spackman, O.T.R.
Marjorie Fish, O.T.R.

From the Educational Secretary

It is with pleasure that the education office announces the names of those examinees who successfully completed the June, 1955, registration examination.

Abati, Rita M. 8
Adams, Marilyn M. 9
Albert, Aileen H. 23
Allen, Marilla M. 8
Apfel, Fanchon M. 14
Ashcom, Thomas L., Jr. 14
Bachrach, Lydia 26
Bailey, Elsa S. 4
Baker, Leslie L. 11
Balliet, Helen J. 25
Barde, Adela J. 27
Bearup, Cecilie 164
Beckner, Anne S. 16
Bekkedahl, Swanhild F. 8
Bell, R. Virginia 1
Bender, Donna L. 9
Bennet, Normajean M. 4
Benzies, Sandra J. 23
Bickford, Mary 11
Bingaman, Catharine L. 1
Birdsell, Permela L. 1
Bisceglia, Joan M. 14
Bittner, Jane K. 11
Blanchard, Lewis T. 16
Blasberg,* Lilo 3
Boehne, Patricia C. 9
Boehrer, Mary P. 23
Bogen, Hedy 12
Bonkhofer, Hannelore B. 8
Bors, Marian L. 18
Borst, Barbara J. 9
Borthwick, Joyce A. 220
Bracken, Marjorie R. 22
Brierley, Jean M. 1
Broadfoot, Roberta I. 8
Bronstein, Gladys 14
Brooks, Louise W. 1
Brown, Carol R. 14
Bryson, Irene L. 27
Bunker, Laurel G. 1
Burbach, Anne G. 10
Burns, Clothilde M. 22
Burns, Jean M. 19
Burson, Shirley E. 16
Buswell, Marilyn E. 22
Calvert, La Metta 20
Campbell, Marilyn T. 11
Cassitto, Grace E. 12
Cheney, Judith A. 18
Ching, Constance Y. 8
Clark, Marilyn M. 25
Collins, Elaine J. 16
Condon, Jane A. 25
Cook, Athene 27
Cowley, Cynthia L. 25
Cramer, Jodell L. 23
Crossen, Carolyn W. 27
Dahlin, Helen M. 9
Dana, Jean F. 14
Dale, Patsy R. 20
Davidson, Margaret L. 1
Davis, Marilyn J. 23
Dea, Allison 1
Del Bello, Mary 14
Devine, Shirley A. 27
De Vries, Elaine A. 4
Doyle, Catherine J. 27
Dumbrigue, Bertha H. 6
Dunn, Shirley D. 15
Eckels, Alice M. 19
Edwards, Mary L. 27
Ehlers, Elizabeth A. 23
Farrar, Nancy 16
Faust, Nacy P. 14
Finn, Geraldine L. 1
Firth, Martha S. 1
Fish, Ceril H. 1
Fossey, Dian J. 18
Freeborn, Ida M. 14
Friedman, Arline J. 1
Fuchs, Anna L. 1
Fulton, Ellen E. 4
Gale, Joan S. 1
Gardner, Katherine S. 1
Gates, Betty-Ann W. 1
Gilkey, Jane 22
Gilmore, Jean 11
Glynn, Donald G. 22
Godette, Mary L. 4
Goetzman, Rosemary L. 25
Goll, Kathryn V. 27
Goodman, Marilyn D. 8
Gordon, Maureen E. 22
Green, Cynthia J. 1
Griffin, Lenore J. 18
Groeschel, Mary P. 22
Guindon, Aleta V. 24
Haber, Janice G. 7
Hall, Charlene T. 15
Hanlon, Judith V. 9
Hanson, Barbara A. 1
Hanson, E. LaVyrne 9
Harkleroad, Donna J. 18
Harper, Donna M. 1
Haslam, Joanne A. 4
Hathaway, Ava F. 4

Hausman, Miriam C. 12
Hayes, Florence E. 10
Henriquez, Catalina E. 17
Henry, Faye E. 16
Hiltunen, Margaret B. 9
Hippaka, Helen C. 25
Hoehn, Sister Carol M. 14
Hofmeister, Gesella A. 8
Howell, Joan M. 9
Hussey, Naomi R. 11
Ikeda, May S. 14
Jacobs, Carol F. 13
Jacobs, Joanne S. 23
Jeffries, Donna L. 4
Jennings, Marilynn J. 19
Jerabek, Roma L. 18
Jerde, Lois M. 17
Jensen, Valeria K. 11
Johnson, Boyd N. 19
Johnson, Doris K. 23
Johnson, Marilyn L. 23
Jordan, May E. 6
Joyner, Vernestene 27
Karafotis, Sophie 11
Karsh, Marilyn 22
Kimmel, Paula S. 23
Kindel, Jessie M. 1
King, Barbara R. 14
Kinney, Miriam R. 13
Klingsmith, Barbara L. 24
Koch, Letitia P. 23
Koefoed,* Lisa 12
Koep, Beverly J. 9
Koplewsky, Martha T. 25
Kopp, Claire B. 19
Kramer, Joseph 2
Kramer, Phyllis M. 20
Krass, Edith P. 26
Kroeker, Mary A. 15
Kroon, Ruby M. 9
Kuczynski, Phyllis M. 26
Kurtzweil, V. Claire 10
Kwok, Jean G. 7
Lande, Bess C. 1
Lawn,* Elizabeth C. 14
Lehman, W. Ann 18
Levitt, Hermina E. 12
Liepold, Frances S. 1
Liss, Mary P. 8
Littlefield, Shirley J. 20
Long, Virginia M. 16
Loo, Peggy S. 20
Lorenz, Betty J. 14
Lund, Marjorie J. 23
Lundberg, Anne-Marie 18
Lyman, Anne D. 27
McConaghie, Kenneth J. 12
McNabb, Lelia J. 26
McQuaide, Cecilia B. 14
McQueary, Wilma J. 19
MacDonald, Isabel H. 1
MacNair, Tina A. 25
Maloy, Charlotte A. 27
Mattson, Gayle E. 9
Meierding, Dorothy F. 9
Mengshol, Marilyn C. 18
Meske, Pauline L. 23
Meuse, Dolores M. 1
Mitchell, Mary A. 1
Monahan, Patricia M. 1
Moon, Barbara C. 8
Moore, Josephine C. 6
Moore, Marilyn J. 3
Morrison, Betty J. 1
Morse, Mary R. 18
Morton, Patricia A. 18
Mumford, Barbara C. 15
Murray, Janet 2
Nath, Barbara E. 26
Nielsen, Signe T. 27
Noel, Doris A. 25
Noonan, Elizabeth M. 1
Norton, Shirley B. 1
Nowack, E. Karin 14
O'Brien, Sarah J. 25
O'Leary, John E. 24
O'Meara, Jane M. 1
Okumura, Alberta H. 8
Oliver, Ellen F. 14
Osborn, Janice L. 4
Paasche, Elsa J. 9
Paddock, Janet M. 8
Palm, Helen M. 9
Panning, Marilyn M. 9
Panning, Marlys M. 9
Parks, Carleen J. 6
Peart, Lillian C. 18
Peck, Maxine F. 17
Pennucci, Jean C. 27
Perry, Nanci E. 4
Peterson, Helen L. 15
Petersen, Jeannette I. 9
Peterson, M. Diane 16
Pezzuti, Leonora A. 14
Phillips, Deborah 1
Pinchbeck, Ann 1
Punwar, Alice A. 23
Rausch, Susan B. 15
Rebmann, Beverly M. 14
Rensin, Audrey S. 1
Restle, Sister Mary J. 17
Rhoten, Carolyn E. 13
Rider, Barbara B. 23
Ries, Marian H. 25
Riley, Willetta C. 14
Robertson, Elizabeth A. 20
Robinson, Helen P. 23
Rodig, Lois P. 8
Rosch, William L. 12
Roth, Edythe K. 1
Ruesch, Marilyn M. 19
Ruffley, Roberta E. 4
Runge, Phyllis J. 25
de Sanhueza, Emma R. 17
Sarar, Olga E. 22
Scanlan, Miriam F. 23
Schulke, Margaret A. 25
Schumacher, Sister Mary S. 10
Schwartau, Phyllis L. 9
Scully, Elizabeth A. 1
Seitz, Elizabeth A. 22
Severa,* Eleanor 14
Shannon, Wilma N. 15
Sheda, Constance H. 25
Shinagawa, Dorothy S. 18
Simione, Josephine A. 1
Simpson, Roberta S. 1
Simson, Thea 11
Skellet, Carla R. 1
Skolnick, Susan E. 4
Slifkin, Rose 14
Small, Helen V. 1
Smallwood, Rita H. 26
Smith, Barbara A. 3
Smith, Joan P. 4
Sonnemann, Barbara A. 27
Sorensen, Katherine J. 24
Spicer, George E. 15
Stanley, Carol H. 27
Sternes, William N. Jr. 22
Steele, Margaret A. 20
Stefaney, John E. 1
Stein, Anne B. 20
Stowell, Jerald P. 4
Strickland, Marilyn M. 16
Strohm, Mary M. 26
Strong, Marilyn H. 12
Sunshine, I. Phyllis 22
Sutherland, Edwina A. 11
Swanson, Lois H. 9
Tanaka, Alice C. 18
Tanenbaum,* Dolores P. 2
Tanner, Phyllis B. 22
Tarr, Barbara E. 6
Taylor, Mary M. 4
Tekulsky, Doris 12
Tillman, Vivian J. 6
Townsend, Jay A. 18
Tree, Mary E. 6
Troxel, Solveig, E. 23
True, Mildred F. 1
Tubbs, Garth D. 22
Tziritas, Anne F. 23
Udell, Lois M. 4
Van Dyke, Shirley L. 4
Van Norman, Leon W. 13
Van Zandt, Lucretia E. 23
Vlahos, Cleopatra 2
Volk, Carol L. 14
Walker, Alberta D. 19
Walker, Ann N. 2
Walshe, Dorothy L. 16
Warren, Mary V. 27
Wasson, Virginia C. 23
Watkins, Marjorie H. 13
Wells, Mary L. 27
Welsh, Margaret J. 1
Whitehouse, Dorothy S. 27
Wiley, Elizabeth A. 1
Williams, Margaret A. 16
Wimberg, Ann 13
Wood, Elizabeth V. 14
Woodin, Barbara A. 19
Wurts, Anne B. 1
Young, Elizabeth L. 220
Zilkoski, Jean A. 14
Zimmerman, Kay A. 18

*With honors

CODE NUMBERS FOR OCCUPATIONAL THERAPY SCHOOLS

Boston School of Occupational Therapy, Tufts University	1
Colorado Agricultural and Mechanical College	24
Columbia University	2
Illinois, University of	3
Iowa, The State University of	25
Kalamazoo School of Occupational Therapy, Western Michigan College	4
Michigan State Normal College	6
Mills College	7
Milwaukee-Downer College	8
Minnesota, University of	9
Mount Mary College	10
New Hampshire, University of	11
New York University	12
Ohio State University	13
Philadelphia School of Occupational Therapy, University of Pennsylvania	14
Puget Sound, College of	15
Richmond Professional Institute, College of William and Mary	16
St. Catherine, College of	17
San Jose State College	18
Southern California, University of	19
Texas State College for Women	20
Washington University School of Medicine	22
Wayne University	26
Wisconsin, University of	23

FOREIGN SCHOOLS OF OCCUPATIONAL THERAPY

Edinburgh Convalescent Hospital Group, Astley-Ainsley Hospital	220
The Occupational Therapy Center and Training School, London	164

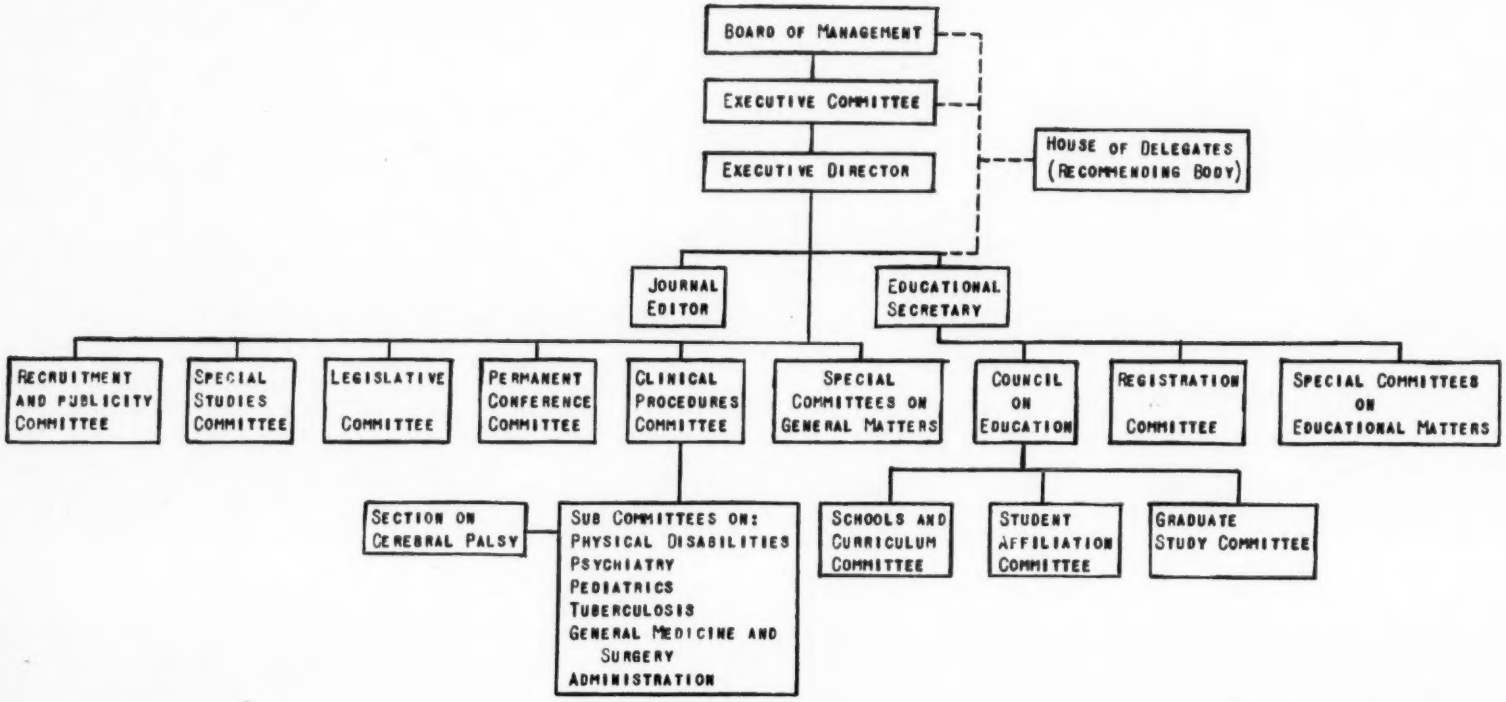
Mary Frances Heermans, O.T.R.
Educational Secretary

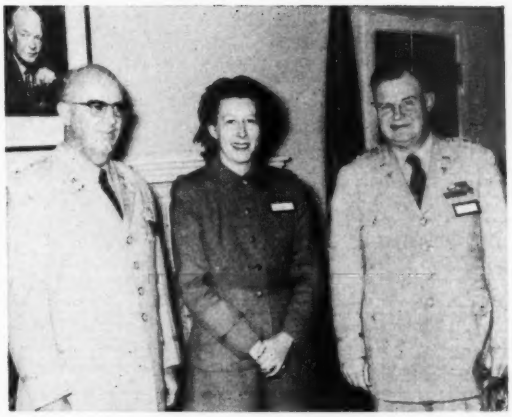
CHART OF

COMMITTEE ORGANIZATION

IN THE

AMERICAN OCCUPATIONAL THERAPY ASSOCIATION





Lt. Col. Myra L. McDaniel, Army Medical Specialist Corps, receives congratulations from Maj. Gen. Silas B. Hays, (right) The Army Surgeon General, and Maj. Gen. James P. Cooney, (left) Deputy Surg. Gen., following her promotion to the position of chief of the Occupational Therapy Section of the Corps.

NEW CHIEF FOR ARMY OCCUPATIONAL THERAPISTS

Major Myra L. McDaniel, Army Medical Specalist Corps, took her oath of office as the new chief of the occupational therapy section of the corps and advanced to the rank of Lieutenant Colonel at a ceremony in the office of the Surgeon General on October 4. Major General Silas B. Hays, Surgeon General, administered the oath,

An Army occupational therapist since 1945 when she completed her clinical affiliation at Crile General Hospital, Colonel McDaniel comes to her new assignment from Valley Forge Army Hospital, Phoenixville, Pa., where she was chief occupational therapist. Previously she had been director of the Army occupational therapy school at Brooke Army Medical Center, Fort Sam Houston, Texas. Colonel McDaniel has also been chief occupational therapist at Madigan Army Hospital, Tacoma, Washington, and Fitzsimons Army Hospital, Denver, Colorado.

Colonel McDaniel is a graduate of Milwaukee-Downer College, Milwaukee, Wisconsin, and holds a master's degree in occupational therapy from the University of Southern California. She is chairman of the physical disability sub-committee of the AOTA clinical procedures committee and an associate editor of the American Journal of Occupational Therapy.

The chart of committee organization in the American Occupational Therapy Association which appears on page 292 was drawn by Miss Evelyn Moose, O.T.R.

REPORT OF THE ASSOCIATION'S REPRESENTATIVE ON JOINT COMMISSION ON MENTAL HEALTH AND ILLNESS, INC.

As a discipline organization concerned with the treatment and prevention of mental illness, the American Occupational Therapy Association is privileged to participate in the functions of the Joint Commission on Mental Health and Illness, Inc.

The purpose of the Commission is to carry out the Mental Health Study Act of 1955 (Public Law 182). This act authorizes the Surgeon General of the U. S. Public Health Service to grant monies to a non-governmental organization to make a three year nationwide study of the human and economic problems of mental illness.

The establishment of the Commission was proposed by the executive committees of the American Psychiatric Association and the council on mental health of the American Medical Association in January. Subsequently, representations from nineteen organizations were assembled on two occasions to determine the organizational plan of the commission and to define its function. Some aspects of the study as conceived by the group are as follows:

1. There should be a study of the total needs and resources on a nationwide scale, directed toward evolving new concepts and methods dealing with mental illness and the advancement of mental health. It was implied that the search for solutions might well result in the conclusion that the mental hospital as we know it today may not be the "almost exclusive tool for dealing with mental illness."

2. A serious study should include consideration of the ever present problem of insufficient personnel available to provide treatment as well as to make available, opportunities for effective preparation of the members of the various disciplines.

3. The inclusion of disciplines such as social science, teaching and anthropology was emphasized in order to determine the basic problems of living which lead to mental illness.

4. Appropriate reports should be made to Congress as well as participating groups at designated intervals.

A survey resulting from this proposed program was compared to the Flexner Report on Medical Schools (1910). It was hoped that this study would do for mental illness what the Flexner Report did for medical education, that is, to point out *new directions* in accomplishing the goal.

HIGHLIGHTS OF THE ORGANIZATION

The Commission as constituted consists of five members appointed from the respective councils of the American Psychiatric Association and the American Medical Association and one repre-

sentative of the remaining organizations; others may be added at a later date.

The officers of the Commission elected on October eighth and the organization they represent are: Kenneth E. Appel, M.D., President, American Psychiatric Association; M. Brewster Smith, Ph.D., Vice-President, Social Service Research Council; Mr. Charles Schlaeffer, Secretary-Treasurer, National Association for Mental Health.

Dr. Leo H. Bartemeier, representative of the council on mental health of the American Medical Association, will serve as chairman of the board of trustees consisting of eight members. The following standing committees formulated at the first meeting are already functioning: Scientific Planning & Study Committee, By-Laws and Membership.

Suggestions for project studies will be submitted to the executive director by any of the members of the commission. Your representative seeks your assistance in helping to determine the subject matter for projects related to our field, which may be proposed for consideration by the project committee. Studies and projects accepted by the commission will receive guidance therefrom and possible financial assistance.

There will be a paid staff, a principal investigator, a publicity and fund raising director and an executive director. It will be the policy of the Commission that its reports will be that of the incorporated body. They shall not be subject to review by any other organization. Therefore, they will not necessarily reflect the opinions or require approval of the organizations which are represented. In other words, it is an association of individuals, not of organizations.

Each organization approved for membership has the privilege of naming or replacing its representative at will.

Future meetings will be called as developments dictate; the official yearly meeting will be in October of each year.

Respectfully submitted,

Beatrice D. Wade, *Representative, AOTA Joint Commission on Mental Health and Illness, Inc.*

RESEARCH AWARDS

The Easter Seal Research Foundation of the National Society for Crippled Children and Adults announces a fund available for a research program meeting the approval of the Foundation.

Applications for grants for the fiscal year 1956-57 should be made on or before December 31, 1955, and should pertain to prevention of physical and associated disabilities or improved methods of treatment.

DELEGATES DIVISION

ARKANSAS

Delegate-Reporter, Virginia R. Stockwell, O.T.R.

At the first meeting in the fall, the Arkansas O.T. Association had as its speaker Dr. Weing Crawfis, superintendent of the Arkansas State Hospital for Nervous Diseases. He spoke on the subject of "Mental Hygiene Needs of the State." Capt. Edward R. Reece, of Army-Navy Hospital, was speaker at the meeting held in November at Hot Springs when the subject under discussion was "Principles and Philosophy in the Treatment of Arthritis."

Following the seventh annual neuropsychiatric meeting at the North Little Rock V.A. Hospital we were fortunate in having Dr. Arthur P. Noyes, then president of the American Psychiatric Association, speak to us on "Personality Disorders and their Treatments." Dr. Noyes had been one of the participants at the NP meeting.

Our special project at the present time is recruitment and the preparation of a portable OT display to be used over the state. Meetings have been held monthly to work on the display. Our association members are being called upon to participate in meetings of allied medical groups. Two members participated on panels at the Orthopedic Institute held in Little Rock by the Arkansas League for Nursing, one will speak at the meeting of practical nurses in October, one spoke to the student nurses at the Baptist church, and one before the Future Nurses club at the high school.

The local TV stations are very cooperative and have used on their program the film, "Ann Gray, O.T.," and will use other material.

At the annual meeting in May the officers were elected for the coming year.

OFFICERS

President	Ayleene Feibelman, O.T.R.
Vice-President	Margaret G. King, O.T.R.
Secretary-Treasurer	Florence E. Wood, O.T.R.
Delegate	Virginia R. Stockwell, O.T.R.
Alternate	Ayleene Feibelman, O.T.R.

INDIANA

Delegate-Reporter, Joyce C. Campbell, O.T.R.

Continuing with the 1954 convention theme of "Interpersonal Relationships," the Indiana association developed programs which were both informative and stimulating. Meetings provoked the interest of the membership, thereby increasing attendance. The group also voted to change from bi-monthly to monthly meetings from September through May.

Starting the year was the joint meeting with the Kentucky association in Lexington. A worthwhile day was planned which included a tour of hospitals of that area. The remaining meetings were held in Indianapolis. Mr. Elias Cohen of the State Commission of Mental Health had an attentive audience in November when he spoke about "Principles of Good Interpersonal Relationships on the Administrative Level." He led an active discussion after his presentation. In January Dr. George Garceau reviewed present surgical treatment of posture cases for the combined physical and occupational therapy meeting.

Interest within the group was shown at two extra evening sessions when the Indiana University Adult Education Services conducted a course in "Techniques in Group Discussion." This proved especially worthwhile in succeeding meetings when member participation in programs was encouraged. Preceding the March business

meeting was a panel discussion concerning the team approach in psychiatric treatment.

A May picnic at Sunnyside Sanatorium provided an enjoyable social evening. Indiana presented as its contribution to Tri-State's success a program on the psychiatric field with Dr. William Lordi as speaker. A dinner preceded the annual business meeting in June.

The Indiana Occupational Therapy Association has joined with other medical professions in recruitment efforts. The membership has contributed to the efforts of the Interprofessional Recruitment Committee and is co-operating with high school career day programs, publication of a brochure, and other publicity work. The association was also admitted this year to the membership of the Marion County Health and Welfare Council and will be included in their listing.

OFFICERS

President	Marjorie Hillsman, O.T.R.
Vice-president	Marguerite Bick, O.T.R.
Secretary	Marcia Varney, O.T.R.
Treasurer	Clara Shumacher, O.T.R.
Delegate	Joyce Campbell, O.T.R.
Alternate-Delegate	Ruth Grummon, O.T.R.

VIRGINIA

Delegate-Reporter, Margery C. Peple, O.T.R.

The activities of the Virginia Occupational Therapy Association have been most varied during the last year. One of the most interesting programs of the year was a workshop meeting patterned after the institute at the 1954 conference. This was the annual combined physical therapy-occupational therapy meeting. A patient with multiple disabilities was dramatized by an occupational therapy student. The therapists then met in groups of ten — five physical therapists, five occupational therapists — to plan a total treatment program. The treatment programs were then presented to the whole group and a critical review was made. This type of meeting enabled the two groups to cooperate fully with each other, both in planning the meeting and in carrying it out.

Numerous meetings with the Maryland and District of Columbia Occupational Therapy Associations were climaxed by the 1954 conference in Washington. Many new friendships were formed, which were later renewed at a Tri-State meeting at the National Institutes of Health in Bethesda, Maryland. The program there included a description of the rehabilitation department and two papers: "Studies in the Diagnosis of Games in Program Activities" and "Modern Day Management of Rheumatoid Arthritis."

A craft seminar was held at Central State Hospital, which at that time did not have a registered therapist. At this meeting, therapists demonstrated several crafts for the aides in the occupational therapy department, and also learned many things from the group.

Several television and radio programs were presented by occupational therapists in the interest of publicity and recruitment. In addition, several Virginia therapists have spoken to high school groups on Career Day and other occasions.

The VOTA has become very research conscious, as was evidenced by several programs during the year. The research committee has begun a project to study motivation of geriatric patients in occupational therapy. This is still in the planning stage, but care is being taken to assure a valid study.

The Virginia Occupational Therapy Association is beginning a new year with new officers, hoping that this year will be as successful as 1954-1955.

OFFICERS

President	Mary E. Blayney, O.T.R.
Vice-President	Martha E. Matthews, O.T.R.
Secretary	Beverly Gaines, O.T.R.
Treasurer	Robert K. Bing, O.T.R.
Corresponding Secretary	Bette L. Hopkins, O.T.R.
Delegate	Margery C. Peple, O.T.R.
Alternate Delegate	Donald Hines, O.T.R.

MARYLAND

Delegate-Reporter, Marianne Catterton, O.T.R.

The Maryland Occupational Therapy Association held its regular six meetings during the year but increasing amounts of business made the meetings too long and it was difficult to schedule enough program meetings to satisfy all the members. As a result the membership voted to increase the number of meetings held during the year.

With thirty-nine active members and an average attendance of twenty-five at meetings, it was, of course, stimulating to meet with the Washington and Virginia groups for planning the Washington conference. The institute committee has worked as long and hard editing and collating material since the conference as it did preparing for the institute, but many of the rest of the Maryland, Washington and Virginia groups missed meeting together and have planned more frequent and less formal joint meetings than the former annual tri-state meetings.

A strange urge to move away from our splendid state has cost us several officers this year. In June a special election was held to choose replacements for our secretary and publicity chairman. We later received with most sincere regret the resignation of our president, Mrs. Elinor Owen, who has been a hard-working and valuable officer of our association for several years.

OFFICERS

President	Eleanor Stisser Owen, O.T.R.
Vice-President	Beverly Ann Jones, O.T.R.
Secretary	Mary B. Hutton, O.T.R.
Treasurer	Martha H. Winfield, O.T.R.
Delegate	Marianne Catterton, O.T.R.
Alternate Delegate	Elizabeth Grayson, O.T.R.

POSTGRADUATE COURSE

Baylor University College of Medicine, Southwestern Poliomyelitis Respiratory Center and Jefferson Davis Hospital in cooperation with the National Foundation for Infantile Paralysis, Inc., announce a postgraduate course on the clinical management of poliomyelitis to be held February 27, 28, 29 and March 1 and 2, 1956.

The course will cover complete care of poliomyelitis with emphasis on the severely involved patient, the effective coordination of ancillary services and the value of comprehensive care.

For further details write:

William A. Spencer, M.D., Medical Director
Southwestern Poliomyelitis Respiratory Center
Jefferson Davis Hospital
1801 Buffalo Drive
Houston 3, Texas

Calendar of Events

March 21-22, 1956
National Health Forum
New York, New York

April 1-14, 1956
Council of the
World Federation of Occupational Therapists
Philadelphia, Pennsylvania

June 17-23, 1956
Second Congress of the
World Federation for Physical Therapy
Hotel Statler
New York, New York

September 29-October 5, 1956
Annual Conference of the
American Occupational Therapy Association
Nicollet Hotel
Minneapolis, Minnesota

March 25-31, 1957
Inter-American Congress of the
Pan-American Medical Association
Mexico City, Mexico

Working as a Team . . .

(*Continued from page* 271)

allied disciplines, his medical peers, his administrators, his community. If he can see the role of teacher in terms of information presented vividly, concisely and at the proper time, mutual benefit will result. Let him remember, in the words of "The Prophet," that the teacher who is wise "does not bid you enter the house of his wisdom but rather leads you to the threshold of your own mind."

The therapist who is alert to the myriad revelations of his daily experiences will crave, sooner or later, the exercise of analyzing some of the whys and wherefores that present themselves. In beginning to examine, study, tabulate and correlate he is fulfilling another of his functions both as an occupational therapist and as a member of the team.

There are three elements that surely contribute to the emergence of a mature person and a progressive society. These are the same elements that make for a good therapist and a valuable team member. They are: the *vision* that permits us to plan for today and tomorrow, knowing that the possible can be accomplished now and the impossible takes but a little longer; the *curiosity* that demands exploration of all that is new, new to the whole field of rehabilitation as well as our own garden patch; and the *flexibility* that permits us to change, not just for the sake of changing but in response to the eternal challenge of human conservation.

Mechanical Ability . . .

(*Continued from page* 263)

4. Dotting differentiates right from left handers and the degree of laterality dominance better than any other MacQuarrie subtest.

5. Training the right hand augments dextrality, but training the left hand does not reverse the laterality dominance. In the average subject it merely reduces the magnitude of the right handedness.

6. The less skilled hand improves more than the better extremity as a result of direct practice.

7. Almost as much is gained by cross education as by direct training.

8. Training tends to equalize the performance of the two hands and it matters comparatively little which hand is subjected to direct practice. Both profit and the gain is greatest in the one showing the poorest initial performance.

Acknowledgments: Appreciation is expressed for the technical assistance of Dr. C. Etta Walters, research associate in physical medicine, who helped administer and score the MacQuarrie tests.

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Pilot Study . . .

(*Continued from page 267*)

the mean in both work habits and dexterity-production ratio. It seems then, that the poor work habits of the above three trainees were a strong contributing factor toward a production record not comparable to their physical capacity.

Two trainees fell more than one standard deviation from the mean in both production and dexterity, suggesting a casual relationship. Both scored within a standard deviation from the mean score on work habits.

CONCLUSIONS

Of the thirteen trainees comprising this study, three had good work habits which appears to be a deciding factor in above average production. Three had low production scores which could be attributed more to poor work habits than poor dexterity, suggesting a casual relationship. Both was apparently caused primarily by poor dexterity.

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Hospital Library . . .

(*Continued from page 269*)

services are a real contribution, and the experience is especially helpful to those people who plan to find employment after leaving the hospital.

Weekly reports at staff meetings are made to physicians regarding patients' reading and their participation in the discussion groups. The pattern of a patient's reading, his response to books and his requests for information may be significant in his illness. The doctor will ask questions about his patients' response to the library. He will tell the librarian of his patients' recreational interests, and will recommend those who can benefit from speaking at the book review programs.

Has reading any therapeutic value beyond that of simply turning the patient's attention outward? Certain benefits of books are obvious. They impart useful information. Reading is a mental discipline, and a book a counteraction to wandering thoughts. In reading novels and biographies we reach out to touch other lives, and it may be that some patients can more readily establish a relationship with people in a book than with those in real life. Literature and the drama are unique in that in them are specific human experiences in which we can become emotionally involved. When does this emotional involvement occur in patients' reading and can it be manipulated to become an adjunct to psychotherapy? This is to suggest the possibilities; their full development awaits exploration. As an illustration, could a novel familiar to both doctor and patient become a springboard for discussion between them? If in some ways the story parallels a patient's life could it help him to express that which he could not otherwise communicate? Can attitudes be modified by reading, and under what conditions? It may be that in the imaginative use of literature applied to specific situations the physician can find another tool to aid him in therapy.

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CATALOG OF CHILDREN'S BOOKS

The 1956 edition of the *Annotated List of Books for Supplementary Reading* from kindergarten through the ninth grade has just been published by the Children's Reading Service, 1078 St. John's Place, Brooklyn 13, New York. This catalog is available without charge if requested on official letterhead, otherwise the cost is 25c in stamps or coin.

The catalog contains a list of 1000 children's books from more than 40 publishers, arranged by topics and school grade levels.

Reviews

DOUBLE ARM HARNESS FOR HEMIPLEGIAS

Margaret H. Jones, M.D.
American Journal of Physical Medicine
Vol. 33, No. 6, Dec., 1954
Reviewed by: Elizabeth M. Wagner, O.T.R.

A simple device designed to give hemiplegias "more awareness of the affected arm and hand, more abduction of the thumb, some supination and perhaps a little less flexion of the forearm, some relaxation of the shoulder and hence better use of the affected arm. Using the basic design with modification to fit the individual patient, in conjunction with other accepted modes of therapy, the device has been shown to improve function of the arm and hand in the hemiplegic infant, child and adult."

THE PRACTICE OF DYNAMIC PSYCHIATRY

Jules H. Masserman, M.D.
Published by
W. B. Saunders Co., Philadelphia
1955 790 pp.
Reviewed by: Bertha J. Piper, O.T.R.

Nearly a decade has passed since the publication of *Principles of Dynamic Psychiatry*, when interest and emphasis was spurred toward dynamic concepts of human behavior. The present volume entitled *The Practice of Dynamic Psychiatry*, by the same author, contains a broader scope of subject matter, much of which is written especially for the edification of psychiatrists and medical practitioners. Topics are covered such as The Training of the Psychiatrist, Purpose of Psychiatric Examination, Techniques of Securing a Psychiatric History, Psychiatrically Significant Aspects of the Physical Examination, Liaison With Jurists, Attorneys, and Insurers and Objectives of Initial Interviews and Medications.

Explanations of several of the current schools of analytic dynamic therapy are presented in one section, and a partial list of the standard nomenclature of mental disorders is contained in the appendices.

THE DIABETICS COOKBOOK

Clarice B. Strachan
Published by
The Medical Arts Publishing Foundation
Houston, Texas
1955 $6.50

A compilation of 250 recipes for foods and beverages the diabetic can eat and enjoy. The author developed and proved the recipes over a period of fourteen years during which she cooked for her diabetic son. Each recipe is written and arranged so that it can be fitted into the individual diabetic's diet prescription, and Mrs. Strachan planned them with such variety and so practically that Dr. Charles H. Best, one of the discoverers of insulin, has written the introduction.

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For Further Information Contact:

ROBERT L. BENNETT, M.D.
Medical Director

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Occupational therapist with at least one year's experience for position at children's medical center. Exceptionally well equipped department, growing in-patient and out-patient treatment programs with a variety of diagnoses. Developing student training program. Salary open, position available February or March of 1956. Write to Paul C. Benton, M.D., Medical Director, Children's Medical Center, Box 4014, Tulsa, Oklahoma.

Fairfield State Hospital, Newtown, Conn. Positions available, occupational therapists and senior therapists; 40-hour week; new clinical units; three-weeks vacation; liberal sick leave and holidays; close proximity to urban communities.

Qualified staff occupational therapist in out-patient rehabilitation center serving Westchester County. Salary commensurate with experience. Contact Eugene Moskowitz, M.D., Director, Mobility, Inc., 10 Heatherbloom Road, White Plains, New York.

Occupational therapist wanted: A challenging opportunity for occupational therapist in rapidly expanding department including new building program. Maintenance available if desired. Salary commensurate with experience. Please write Marion Smith, O.T.R., Director of Occupational Therapy, State Hospital, Jamestown, North Dakota.

Wanted immediately: registered occupational therapist for general physical medicine, rehabilitation in out-patient center. Five-day week, three weeks paid vacation, six holidays, sick leave, social security. Salary dependent upon experience. Write to: Gloria J. Fitzpatrick, R.P.T., Director, Ingham County Curative Workshop, 615 N. Capitol, Lansing, Michigan.

Staff position open for registered occupational therapist. Salary open. Pleasant surroundings and working conditions. Contact Dr. C. G. Ingham, Superintendent, Norfolk State Hospital, Norfolk, Nebr.

Mexico City. Registered occupational therapist wanted to direct out-patient private physical disabilities department. Student affiliation, need for developing profession. Write to Department of Occupational Therapy, American British Cowdray Hospital, Victor Hugo, 79, Mexico 5, D. F.

Prominent rehabilitation center seeks staff therapist for expanding physical disabilities department. Program includes kinetic occupational therapy, daily activity training and pre-vocational exploration. A home-care program will start December, 1955. Extensive student training and volunteer program. Close integration with other departments inclusive of sheltered workshops. Contact Hartford Rehabilitation Center, 2 Holcomb Street, Hartford, Connecticut.

Immediate opening for registered occupational therapist in active 80 bed rehabilitation and polio hospital. Write to S. White, Adm., Toledo Society for Crippled Children, Toledo 6, Ohio.

Staff occupational therapist needed for general hospital, affiliated with the medical school, located in the cultural heart of the city. Program directed primarily in functional and ADL activities. Excellent education and teaching facilities. Good salary. Write to: Dr. Hilda B. Case, Director of PM & R, University Hospitals, 2065 Adelbert Road, Cleveland 6, Ohio.

Position available: immediate opening for registered occupational therapist with experience in rehabilitation of polio patients. Desirable location 18 miles west of Detroit. Area rich in educational, cultural and recreational facilities. Within driving distance of three major universities. Appointee will be given full responsibility of organizing department, recommending equipment purchase. Salary open. Contact Administrator, Sister Kenny Polio Hospital, 30405 Grand River Avenue, Farmington, Michigan.

Therapist—internationally known children's hospital, pediatric unit of Washington University School of Medicine, 136 patients at present, 200 in 1956, 50% patients infants, one therapist, large volunteer program, prefer pediatric experience with interest in teaching program. Write Lilly D. Hoekstra, Administrator, St. Louis Children's Hospital, 500 So. Kingshighway, St. Louis, Mo.

Wanted: an occupational therapist for a full-time permanent position in a 440 bed general hospital. Pleasant working conditions. Good personnel policies. Write J. M. Dunlop, Administrator, Bridgeport Hospital, 267 Grant Street, Bridgeport, Conn.

Registered occupational therapist with one year's experience to supervise clinical training students in psychiatry in university teaching hospital. Excellent working conditions with liberal personnel benefits. Contact Robert G. Lindee, Personnel Department, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado.

OT to establish department in new center. CP patients now, general rehabilitation in future. Salary and personnel policies above average. Contact Christine K. Kline, 209 W. Woodland Avenue, Youngstown, Ohio.

OTR for staff position at state psychiatric hospital with active treatment program, good opportunity for staff education. 40-hour week, liberal paid holidays, sick leave, vacation. Well established student training program. Apply Naida Ackley, O.T.R., Director Occupational Therapy, Trenton State Hospital, Trenton, New Jersey.

Occupational therapist: to be assistant to present occupational therapist in newly developed department in a recently constructed 215 tuberculosis sanatorium. Excellent opportunity to initiate new ideas and formulate new program. Salary $300 per month for beginners, salary commensurate with experience. Social security, excellent working conditions, 40 hour week, two weeks vacation, 18 days sick leave a year. For further information contact W. C. Anderson, Executive Director, Emily P. Bissell Sanatorium, 3000 Newport Gap Pike, Wilmington 8, Delaware.

Immediate opening in Cincinnati as head of occupational therapy department for large, chronically ill, geriatric and rehabilitation hospital connected with general hospital of 450 beds. Salary commensurate with experience. Other benefits of employment. Please write Box No. 12, American Journal of Occupational Therapy, 3514 N. Oakland Ave., Milwaukee 11, Wis.

Two positions open for registered therapists. One for paraplegic and polio shop. One for psychiatric unit where experience in psychiatric field is preferred. For information write Personnel Section, Mayo Clinic, Rochester, Minnesota.

Crippled Children's Outpatient Clinic, Tucson, $315. Graduation from approved course required. Contact Merit System Council, State Office Building, Phoenixville, Arizona.

Immediate opening for registered occupational therapist in cerebral palsy clinic. Contact Utica Cerebral Palsy Clinic, Kernan School, Utica, N. Y., for further details.

Occupational therapist for 340-bed community general hospital. Salary open. Excellent working conditions. Apply Decatur and Macon County Hospital, Decatur, Illinois.

Wanted: registered occupational therapist for a 20 bed psychiatric department. Hospital also has large orthopedic and pediatric departments. Salary open. Write to Director of Nursing Service, St. John's Hospital, Springfield, Illinois.

Staff occupational therapist wanted at Utah State Hospital, Provo, Utah. This is a position in a relatively new and expanding rehabilitation service in a psychiatric hospital. Working conditions are good and time-off provisions are liberal. Salary $3,900 per year. Applicants must be registered or eligible for registration. Experience beyond training is desired but not mandatory. Please direct inquiry to Personnel Director, Utah State Hospital, Provo, Utah.

Head of department opportunity for enterprising occupational therapist with vision, ability and interest in broad program at the new and rapidly developing rehabilitation center for children at Crotched Mountain, Greenfield, New Hampshire. Two hours from Boston. Salary open. Write Personnel Director.

Registered occupational therapist for university teaching hospital. Excellent working conditions with liberal personnel benefits. Contact Robert G. Lindee, Personnel Department, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado.

We earnestly invite applications for the position of occupational therapist in a new and growing clinical center for the cerebral palsied located in Bridgeport, Connecticut (population 160,000) one hour's ride from New York City. Minimum salary $3,600, plus benefits, opportunity for research and advanced study. Write: Fairfield County Cerebral Palsy Center, Edmund S. McLaughlin, Executive Director.

Wanted: occupational therapist for 80-bed tuberculosis sanatorium in Wisconsin, fifty miles from Milwaukee. Therapist is in charge of all occupational therapy, as well as the rehabilitation department. Basic salary $242.50, plus free room and board; $5 raises every six months for 3 years. Paid vacation, sick leave, social security and retirement benefits. Write Rocky Knoll Sanatorium, Plymouth, Wisconsin.

Wanted immediately: occupational therapist for six months in school for crippled children located in beautiful Berkshire Hills. Excellent equipment, cooperative staff, small patient load. Contact Miss Florence McConahey, 472 West St., Pittsfield, Mass.

California: immediate employment for occupational therapists in California's public and special state schools, hospitals, correctional institutions and veterans' home. Graduation from recognized course in occupational therapy required. Salary ranges, $325 to $458. Liberal vacation and retirement. Write at once to State Personnel Board, 801 Capitol Avenue, Sacramento 14, California

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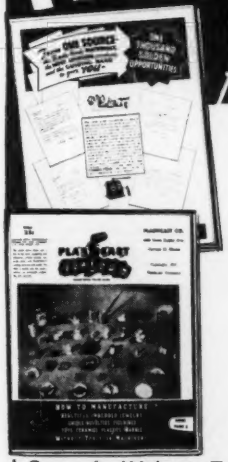

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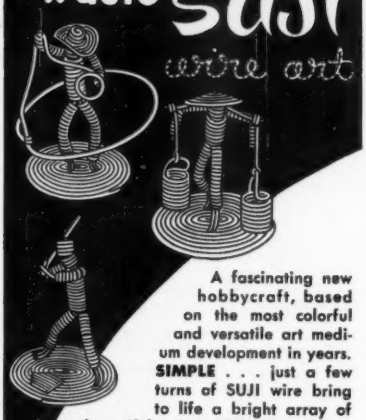

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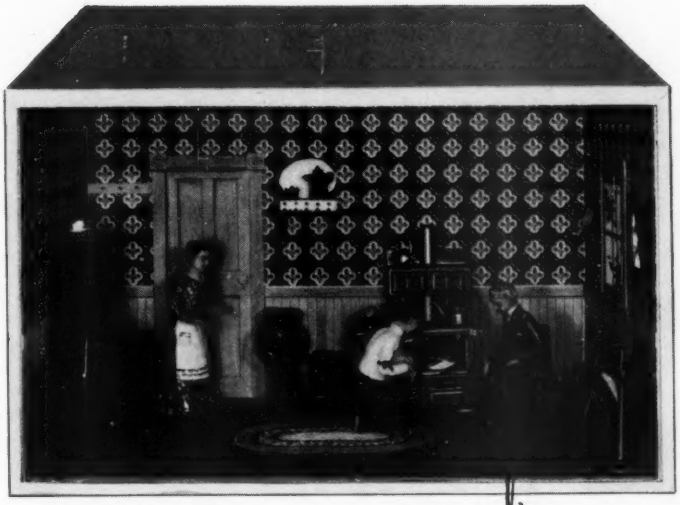

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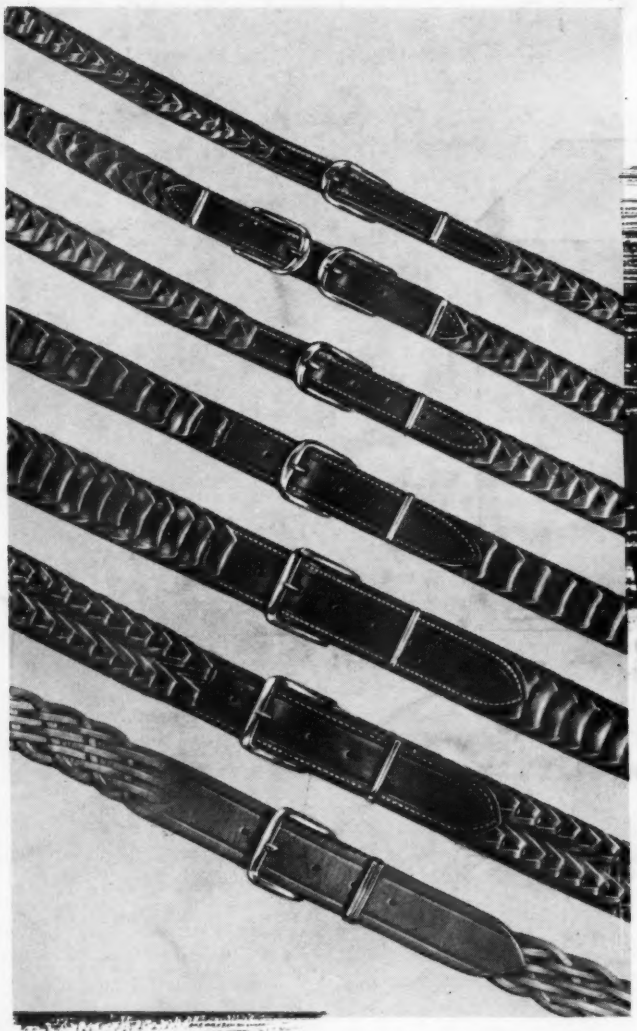

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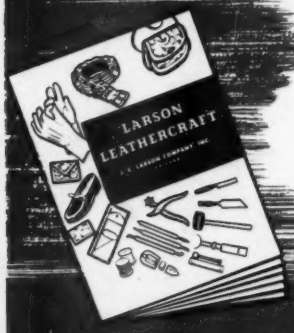

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